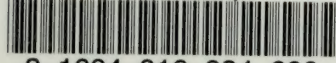


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Small Site Architecture of
Chaco Canyon
New Mexico

Peter J. McKenna
Marcia L. Truell

Publications in Archeology 18D
Chaco Canyon Studies

National Park Service
U.S. Department of the Interior

Santa Fe, New Mexico
1986

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under United States administration.



Front cover: Bc 51, Bc 40, Casa Rinconada, UNM field school, taken August 1938 by J. Robert Jones.

Back cover: Late 1000s-early 1100s "small site" located along the west side of the mouth of South Gap.

Foreword

In 1971, a multidisciplinary National Park Service research team assembled in New Mexico to study past human adaptation to the seemingly harsh, semiarid environment of the four corners region of the American Southwest. A survey of Chaco Canyon National Monument and its environs led in 1980 to legislation that expanded its boundaries, protected 33 outlying Chacoan structures and communities, and redesignated the area as Chaco Culture National Historical Park.

Although the archaeological sites described in this report are small in comparison to the "Great Houses" such as Pueblo Bonito or Pueblo Alto that mark the climax of the Chaco culture, study of them has provided significant new information critical to our understanding of the cultural developments in the Chaco basin that began in the ninth century and culminated in the large pueblos of the twelfth century after Christ. This volume summarizes the architecture of these small sites and serves as an introduction for additional volumes that will report on the excavated sites and the artifacts recovered during research. It complements an earlier study of Great House architecture, published in this series, as well as a forthcoming report on the work at Pueblo Alto, also to be published in this series.

I am delighted to present this volume which represents another important contribution in the Chaco studies series. The astounding variety of architectural styles documented here makes even more evident the richness and complexity of the Chaco Culture National Historical Park.

William Penn Mott, Jr.
Director,
National Park Service

Preface

The Branch of Cultural Research, formerly known as the Chaco Center, was established in 1971 to conduct multidisciplinary research in the area of Chaco Canyon, New Mexico. From 1971 through March 1986, this was a joint National Park Service/University of New Mexico facility housed on the University campus in Albuquerque. Effective April 1, 1986, the staff moved to the National Park Service facilities in Sante Fe; the collections and all their documentation (archival material) are curated by the Maxwell Museum of Anthropology of the University of New Mexico in Albuquerque.

One of the most important missions of the Branch of Cultural Research is to disseminate the results of its research to the professional community and to the interested public, in addition to park service managers and interpreters. Reports on research projects of the Branch are issued either in the National Park Service Publications in Archeology series or in the Reports of the Chaco Center series. The latter was established in 1976 to provide economical and timely distribution of the more specialized research undertaken during the Chaco project studies. The former series contains the broader reports that often appeal to a wider audience, either because of archaeological content or topics addressed.

This volume summarizes information on those sites that do not fall into the accepted category of "towns" or "great houses," as the introduction by Stephen H. Lekson explains. It is meant to complement Lekson's Great Pueblo Architecture of Chaco Canyon (1984).

The completed work is the result of many years of effort by several people, in addition to the archaeologists/authors. Editing was begun by Bruce Panowski, but other duties made it impossible for him to complete the work. Barbara L. Daniels and Stephen H. Lekson stepped in and have done an excellent job. Under contracts managed by Scientific Illustrator Jerry L. Livingston, Gigi Bayliss, Cherie Rohn, and Vicki Spencer produced the graphics; Gigi Bayliss assembled the final camera-ready copy. Typists included Leah Hott, who worked through the earlier versions of Truell's manuscript, and Dolores M. Guenzi, who completed revisions to produce a

finished volume. To all these individuals, I extend a hearty thanks as they have made my job as General Editor easier.

The Branch of Cultural Research maintains an up-to-date listing of all published papers, reports, and monographs with Chacoan or Chaco-related research carried out under the general auspices of the Chaco project, regardless of where they might be published. This, list, entitled "Contributions of the Chaco Center," is available on request. Correspondence should be addressed to General Editor, Branch of Cultural Research, National Park Service, P.O. Box 728, Santa Fe, New Mexico, 87504-0728.

Frances Joan Mathien
General Editor

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Introduction

Stephen H. Lekson

Chaco Canyon was made a national park to preserve and protect its spectacularly large ruins. There are about a dozen large sites in the central park area--"about a dozen," because there is considerable disagreement about the line separating the named tourist attractions ("towns") from the thousand or more smaller, largely anonymous Anasazi ruins ("small sites") that are also part of Chaco's archaeology. Some sites with names and interpretive trails are actually not that large; some of the smaller, unnamed sites are in fact quite impressive ruins, "small" only in relation to the enormity of Pueblo Bonito or Chetro Ketl.

Between 1973 and 1976, the Chaco Project conducted extensive excavations at ten "small" sites, and more limited testing at many others. This volume contains two separate reports on the architecture of small sites in Chaco Canyon. The two studies presented here complement an earlier volume entitled Great Pueblo Architecture of Chaco Canyon, published in 1984. Separate volumes, one for "Great Pueblos" and another for small sites, might suggest that the Chaco Project found a formula for distinguishing the Great from the small, but this is not so. Truell discusses this problem and its implications at some length in her study. Almost everyone concerned with the Chaco Project now sees small and large sites as a continuum rather than a dichotomy. Why, then, publish two volumes on Chaco architecture instead of one? The answer to this question has more to do with the historical development of the Chaco Project than with the archaeological evidence. We need to consider that history, briefly, to understand how the present volume came to be, and what the reader should and should not expect from it.

The large site-small site "dichotomy" at Chaco is a historical, if not an archaeological, fact. The "town-village problem" is a very long-standing one, and a central issue in the Chaco Project research design (Logan and Bradley 1969). The dichotomy was not seriously questioned until the extensive field work of the Chaco Project was well under way. The idea of Chacoan "communities"--settlements comprising a variety of small-scale and large-scale, domestic and public architecture--surfaced in the late 1970s and early 1980s (Breternitz et al. 1982; Lekson 1981;

2 Small Sites

Marshall et al. 1979; Powers et al. 1983)). At the same time, Truell was documenting the widespread occurrence of "town" architectural traits in "small sites." By that time Chaco Project staff's analytical responsibilities and our projected publication schedules were well established. While Truell, McKenna, and I all agreed that the large-small distinction was largely spurious, the organization of the Chaco Project at the time did not permit the exploration of these ideas beyond casual conversation and a scattering of caveats in our publications.

It is important for the reader to know what to expect from this volume. Truell and McKenna summarize the architecture of small sites at Chaco, but their papers do not represent a report of Chaco Project small site excavations. The site reports necessary to compile such a comprehensive volume have not been published. To date only the descriptive site report for Site 29SJ 1360 has been published (McKenna 1984). Other small site excavation manuscripts, in various states of completion, are deposited in the Chaco Center library. It is hoped that most of them will be published in the future.

In preparing the study of small site architecture, Truell assumed that these site reports, upon which much of her work is based, would be available before her synthesis was published. Unfortunately, production schedules are not always as one would wish. Because Truell's study in many ways depended on the availability of the site reports, we have tried to ameliorate this situation by prefacing Truell's synthesis with McKenna's summary of Chaco Project small site excavations.

The two reports in this volume were never intended to stand as a synthesis of small site archaeology; they are limited in scope to architecture, an admittedly broad limitation. To the Chaco Project's extensive excavation notes, Truell has added all the available data from earlier work at Chaco. In over a century of archaeological work at Chaco, many sites have been excavated, but few have been reported. Truell realized the critical importance of unpublished data for understanding the Chaco Project's excavations, and undertook the synthesis of earlier small site work at Chaco. This was quite a task--decoding old notes; burrowing through dusty archives; identifying faded photographs; interviewing "old Chaco hands"; camping out in the UNM registrar's office to reconstruct the activities of the University's Chaco field school through bulletins and class lists; and revisiting the sites themselves to reconcile the remaining ambiguities. Her work in collecting and critically editing these resources, and presenting them alongside Chaco Project data, was tedious and frustrating; but placing this intractable and (often) lost information before the profession, in a modern intellectual framework, is a major accomplishment of the Chaco Project, and one of the most important results of our research.

McKenna's work, a solid contribution to Chacoan studies, began when McKenna was writing the 29SJ 1360 report, and needed a digest of the dates and contents of the other sites excavated by the Chaco Center. These data he extracted from the manuscript site reports, bringing them into a coherent format and usefully short length.

This volume, then, consists of McKenna's summary of the Chaco Project site reports, followed by Truell's synthesis of small site architecture. They should be seen as two separate, but complementary, studies (though McKenna and Truell differ in minor aspects of site interpretation). The present volume is not intended as a replacement for the numerous unpublished site reports.

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Part I

A Summary of the Chaco Center's Small Site Excavations : 1973 – 1978

Peter J. McKenna

Preface

As analysis and report preparation at the Chaco Center progressed, it became increasingly clear that some short synopsis of the lengthy preliminary reports on excavated sites (mostly by Windes and Truell) would be useful. In 1980 compilation and synthesis of basic information on each site began; it included the scope of excavations, a site plan, initial conclusions, dates, and basic architectural data. The core of the paper, the individual site summaries, grossly abstracted preliminary architecture and stratigraphy reports ranging from 12 to 900+ pages. The introductory section was drawn together after the summaries were completed to provide some explanation, glue, and covering material for disjointed parts and needed caveats on the various vignettes. A draft entitled "A Chacoan Primer: Village Excavations in Chaco Canyon 1973-1978" was circulated in 1981 and revised in 1982. The work was intended to organize basic comparative data on each site and not as a comprehensive document on Chacoan small site architecture; Truell's project was still in the wings. To that end the "Primer" served as a working document for members of the research staff for several years and was referenced under its earlier title in many manuscripts and a few publications.

This paper functions as an introductory overview and precedes Truell's broader, more attribute oriented study. Because of its past history and use, it has seen little revision beyond the standard editing and upgrading of figures. Because of its synthetic nature, it would be very disturbing if anyone developed false impressions about the completeness of the work or lack of information potential on the architecture of Chaco's small sites. Readers should take this as the very beginning, not an end.

Particular thanks go to Tom Windes and Marcia Truell for their help and patience in compiling an "annotated bibliography" of their Chacoan fieldwork. Dwight Drager, H. Wolcott Toll, Steve Lekson, and William Gillespie provided helpful comments and encouragement and forced some precision and coherence in my oft obscure ramblings. I appreciate all these efforts and help which made this report possible. Any shortcomings of omission or commission, however, rest entirely on my doorstep.

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Chapter One

Overview

In 1970 the National Park Service began research in Chaco Canyon National Monument. A loosely structured set of objectives was designed to refine the chronology and outline and reexamine the developmental sequence at Chaco. Prior work had heavily emphasized excavation either in the very latest small sites or the conspicuous "towns" for which the monument was created. Accordingly, work by the Chaco Center was designed to concentrate in the smaller villages and excavate a series of sites in chronological order. Although site locations and time periods had been established by an inventory survey (Hayes et al. 1981), actual sites were, by-and-large, selected for accessibility in accordance with NPS plans to expand the interpretive displays in the canyon; however, by 1980 the NPS had partially backfilled several of the long-standing displays around Casa Rinconada and not implemented its proposed expanded interpretive program.

The purpose of this report is to present brief summaries of Anasazi village excavations and discuss some of the more common questions concerning the Chacoan Anasazi which were preliminarily broached in several of the site reports (Figure 1.1). Between 1973 and 1978, personnel from the Chaco Center investigated approximately 45 sites in the canyon. Of these, 29SJ 389 or Pueblo Alto, is not summarized here, but a report is pending on the excavation of approximately 10 percent of this large Chacoan town (Windes n.d., 1977, 1980b). One shrine, 29SJ 1088, located on the western tip of West Mesa was partially excavated, but is not included in these discussions. The Three-C site (29SJ 625), initially excavated in the 1930s and 1940s, was reexamined by Windes, who located an earlier pithouse and floors in the roomblock beneath the structures described by Vivian (1965). Reexamination of plaza-facing living rooms indicated a patterned array of post-holes, firepits, and an architectural layout similar to that found at other sites, but not clearly discernible in Vivian's maps or discussion. No formal report has been prepared on this reexcavation. Of the remaining 32 excavations, information on a large portion is already available (Hayes and

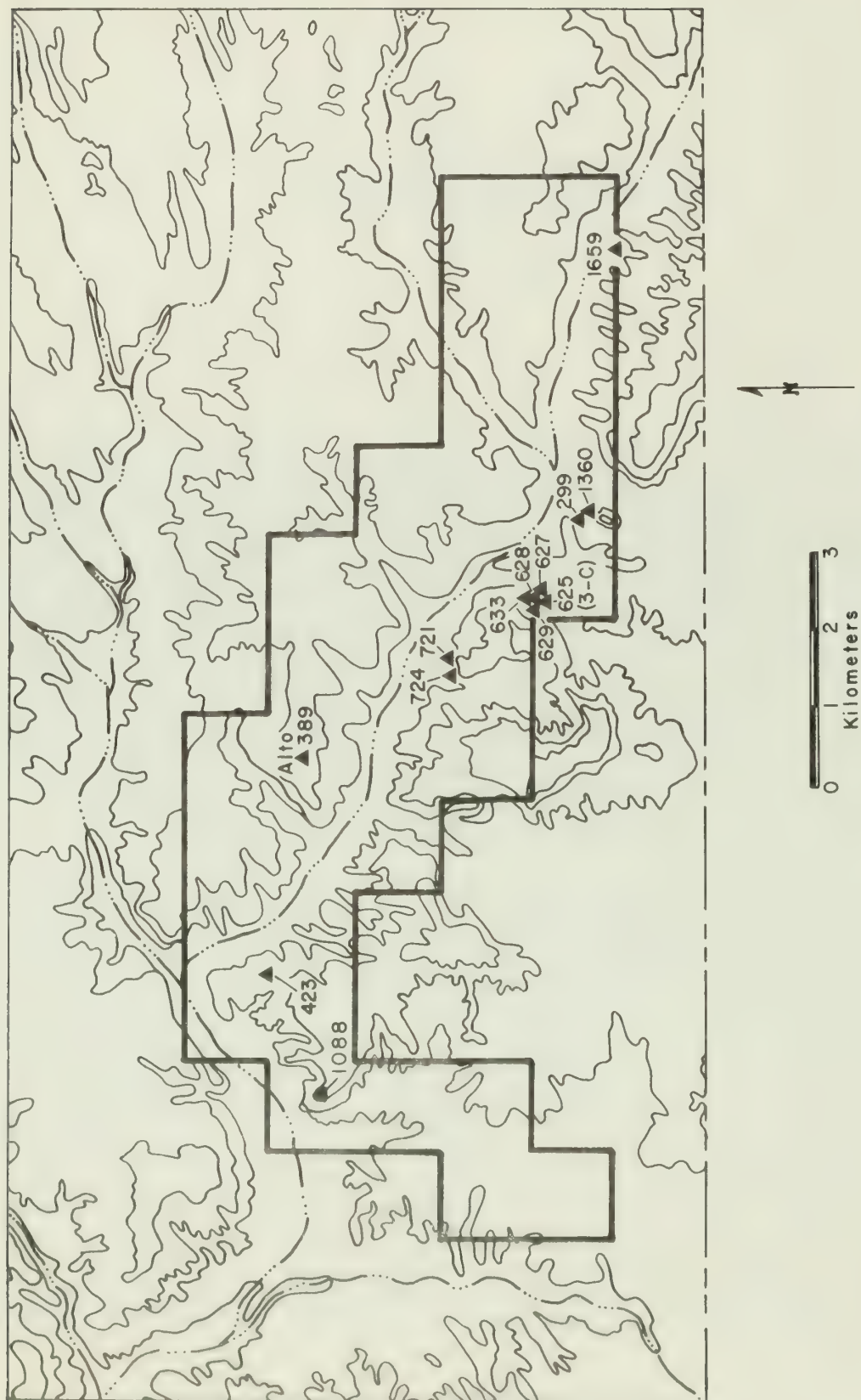


Figure 1.1. Sites excavated by the Chaco Center 1973-1979.

Windes 1974; Windes 1978b), three others are tests, and four are Archaic or Navajo sites.

Currently, there is a great deal of squeamishness about referring to these sites as "villages" and the term "small sites" is a popular compromise. Similarly, "town" has become too value-laden a descriptive term and "Great House" is in vogue (Powers et al. 1983). Some resolution of the problems of small site interpretation may be found in Part Two (this volume) by Truell. Additionally, the following abstracts may be of use to those curious about the sites excavated, the scope of the excavation at those sites, available absolute dates, and general measures of some features and architecture.

Since Simpson (1964) "journalized through" the canyon in 1849, public and professional attention has been almost unwaveringly riveted on the large-scale architecture and social implications of the Chacoan Great Houses. In fact, the Park was created precisely because of them. Excavations in the small sites, with few exceptions (e.g., Adams 1951; Bradley 1971; Judd 1924; Roberts 1929; Vivian 1965), concentrated on the most recent and ostentatious "Bc" mounds in the vicinity of South Gap. Reports on these "Bc" sites (Brand et al. 1937; Dutton 1938; Kluckhohn and Reiter 1939) have for years formed the bulwark of "data" and argument for all manner of theories and reconstructions of Chacoan small site occupation, despite the admittedly preliminary nature of these reports. Heretofore speculations from either end of the occupational spectrum or from other areas had been offered as interpretive models. Little wonder that the only complete phase system proposed for the Chaco area was generated on research done mainly outside the canyon (Gladwin 1945). As a result of the Chaco Center's recent excavations, the data base has been expanded to the point that diachronic and synchronic comparisons based on information from the canyon may be offered. Although no revisions will be suggested for the present chaos in Chacoan classifications or chronology, the information for such a potential revision is now available. Figure 1.2 presents occupational spans of the excavated small sites upon which such a revision would rest. A comparison with other phase and classification systems for Chaco and nearby districts is also shown on Figure 1.2.

One of the most confusing and inappropriate proposals, not included in Figure 1.2, is given by Vivian and Mathews (1965: 108-110) wherein contemporaneous sites are assigned phase names based on architectural differences. Their misuse of Gladwin's (1945) already discredited "Hosta Butte Phase" did nothing to clear the already muddled waters of Chacoan developments or chronology. Other phases of Gladwin's are not clearly manifested in the Chaco sites. Certainly Gladwin's White Mound phase has many architectural attributes in common with contemporary sites (e.g., 29SJ 724) in Chaco Canyon, but after this period his classification falters in Chaco and is not especially useful. Clear evidence of a Kiatuthlanna phase has not been found and certain aspects of Gladwin's Red Mesa and Wingate phases are mingled. Gladwin's Wingate phase is not recognizable in Chaco, but the time period (A.D. 930-1010) designated for it exhibits some interesting changes in architecture. Only a partial, barely outlined, restructuring of post-A.D. 920 phases in Chaco has been suggested (Toll et al. 1980). This

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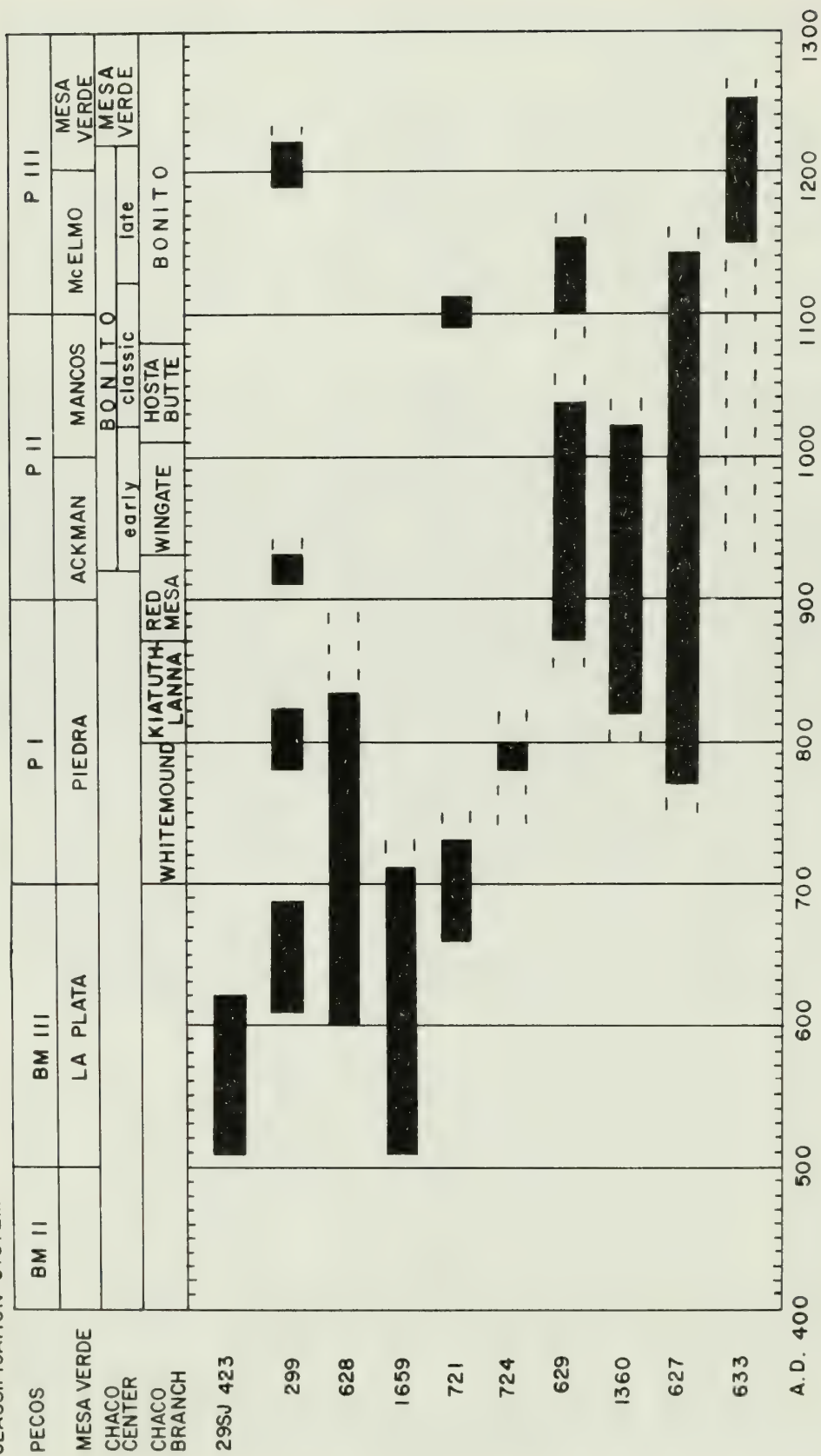


Figure 1.2. Occupation periods in excavated small sites, 1973-1978. Classification systems after Gladwin (1945), Hayes and Lancaster (1975), and Toll et al. (1980).

approach would incorporate all contemporary sites as different expressions of one phase. The formal, more extensive discussion of small sites will focus on attributes through time without necessarily restructuring or redefining the systems of Gladwin, or Vivian and Mathews (Truell Part II, this volume).

In the following report, the Pecos Classification will be used, which although not completely satisfactory, provides a general system less tortured than local sequences currently suggested for Chaco. In some portions the discussion is ordered by "period" somewhat crosscuts, but does not replace the Pecos Classification. These "periods" reflect general temporal groupings of sites and features as suggested by authors and are outlined in Table 1.1 and Figures 1.2-1.7; this table and figures are more fully discussed in "architectural change."

Data presented in Tables 1.2-1.6 represent an effort to standardize and equalize the divergent formats and substantive presentations from one report to another. Roberts' narrative metric data from Shabik'eshchee were converted to tabular form. Metric architectural data presented by the authors were used; if such data were unavailable in the texts, they were calculated with a digital planimeter. Most of the floor areas are from planimeter readings and not length-width calculations. Although the detail of the site reports is lost, a general attempt was made to outline the major elements of stratigraphy, architecture, and preliminary interpretations by the authors. Occasionally I have interjected some new intra- and inter-site comments or comparisons which may not be strictly in keeping with the original discussion. Each abstract contains a site map, or series of maps reflecting various stages of development. Site locations are presented in Figure 1.1. Original survey forms are included for those who wish to assess for themselves the degree of error between survey expectations and excavation realizations (Attachment 1).

Organization of sites is by time period, which roughly corresponds to order of excavation. Excavation methods and recording became more sophisticated and thorough during the project's operations; early sites "suffered" most in terms of comparable methods and possibly data retrieval. Pollen and flotation samples were not systematically collected until the 1975 season and fill was usually not screened. Beginning with the second season at 29SJ 627 (1975), based on preliminary work from the 1974 season, a routine program of stratigraphy and feature recording, screening and pollen and flotation sampling was developed and implemented at 29SJ 627, 29SJ 629, and Pueblo Alto (Judge et al. 1976).

CHRONOMETRIC SAMPLES

Absolute dating of various materials has long been a headache for archaeologists working in the small sites of Chaco Canyon. The Chaco Center collected samples for dendrochronological, radiocarbon, and archaeomagnetic dating. Dated material from each site is presented in tables,

16 Small Sites

Table 1.1. Firepit data.

| | Clay-lined | | Slab-lined | | | Floor m ² | Liters | Floor m ² /liters | Cm | | Depth | |
|--------------------------|------------|-----|------------|-----|-----|-------------------------|--------|---------------------------------|------|-----|-------|-----|
| | Cir | Rec | Cir | Hex | Rec | | | | Dia. | N-S | | E-W |
| I. A.D. 500-700 | | | | | | | | | | | | |
| <u>1659</u> | | | | | | | | | | | | |
| Pithouse A | | | | | x | 19.6 | 31.92 | 1.63 | | 38 | 56 | 15 |
| Pithouse B | x | | | | | 23.1 | 195.07 | 8.44 | 76 | | | 43 |
| Pithouse D | | | x | | | 15.3 | 90.60 | 5.92 | 61 | | | 31 |
| Pithouse E | x | | | | | 13.8 | 38.00 | 2.75 | 61 | | | 13 |
| Pithouse F | x | | | | | 10.1 | 33.72 | 3.34 | | 46 | 61 | 15 |
| Pithouse F-1 | | | x | | | 31.2 | 127.29 | 4.08 | | 61 | 86 | 30 |
| Pithouse G | | | x | | | 10.2 | 102.64 | 10.06 | | 61 | 71 | 30 |
| Pithouse H | x | | | | | 11.2 | 43.84 | 3.91 | 61 | | | 15 |
| Pithouse I | x | | | | | 7.1 | - | - | - | | | - |
| Pithouse J | x | | | | | 10.3 | 24.93 | 2.42 | 46 | | | 15 |
| Pithouse K | x | | | | | 14.6 | 38.00 | 2.60 | 61 | | | 13 |
| Pithouse L | x | | | | | 11.3 | 38.28 | 3.39 | | 61 | 53 | 15 |
| Pithouse M main north | | | x | | | 22.2 | 73.06 | 3.29 | 61 | | | 25 |
| | x | | | | | 22.2 | 52.90 | | 67 | | | 15 |
| Pithouse N | x | | | | | 15.2 | 84.24 | 2.38 | | 61 | 70 | 25 |
| Pithouse O | x | | | | | 10.3 | 128.82 | 12.51 | | 76 | 86 | 25 |
| Pithouse P | x | | | | | 6.5 | 21.60 | 3.32 | 46 | | | 13 |
| Pithouse Q | x | | | | | 15.8 | 73.06 | 4.62 | 61 | | | 25 |
| Pithouse Y | x | | | | | 20.9 | 118.80 | 5.68 | 55 | | | 50 |
| Great Kiva | | | | | x | 87.6 | 265.70 | 3.03 | | 76 | 76 | 46 |
| <u>299</u> | | | | | | | | | | | | |
| Pithouse A | x | | | | | 18.1 | 103.78 | 5.73 | | 66 | 69 | 29 |
| Pithouse D | x | | | | | 12.1 | 43.55 | 3.60 | | 53 | 58 | 18 |
| <u>628</u> | | | | | | | | | | | | |
| Pithouse C | | | x | | | 38.0 | 229.86 | 6.05 | | 80 | 85 | 43 |
| Pithouse D main ante | | | x | | | 15.4 | 104.31 | 6.77 | | 60 | 65 | 34 |
| | x | | | | | 8.9 | 47.52 | 5.34 | 55 | | | 20 |
| Pithouse G | x | | | | | 12.4 | 37.61 | 3.02 | | 55 | 58 | 15 |
| <u>423</u> | | | | | | | | | | | | |
| Pit room A | x | | | | | 4.7 | 23.76 | 5.06 | | 57 | 53 | 10 |
| Pithouse B | x | | | | | 10.8 | 12.40 | 1.15 | | 51 | 44 | 7 |
| Great Kiva III | | x | | | | 58.0 | 188.80 | 3.26 | | 118 | 160 | 10 |
| | 20 | 1 | 6 | | 2 | | | | | | | |

Cir = circular.
 Rect = rectangular.
 Hex = hexagonal.

Table 1.1 continued.

| | Clay-lined | | Slab-lined | | | Floor m ² | Liters | Floor m ² /liters | Cm | | | |
|-------------------|------------|-----|------------|-----|-----|-------------------------|--------|---------------------------------|------|-----|-----|-------|
| | Cir | Rec | Cir | Hex | Rec | | | | Dia. | N-S | E-W | Depth |
| II. A.D. 700-900 | | | | | | | | | | | | |
| <u>721</u> | | | | | | | | | | | | |
| Pithouse A | | | x | | | 9.2 | 43.55 | 4.73 | | 42 | 47 | 28 |
| Pithouse C | x | | | | | 8.2 | 56.55 | 6.90 | 60 | | | 20 |
| <u>724</u> | | | | | | | | | | | | |
| Pithouse A | | | | x | | 22.1 | 83.64 | 3.78 | | 58 | 70 | 26 |
| Room 1 | x | | | | | 12.3 | 47.56 | 3.87 | | 56 | 60 | 18 |
| Room 9 | x | | | | | 7.6 | 44.30 | 5.83 | | 47 | 48 | 25 |
| Ramada | | | x | | | 18.3 | 52.80 | 2.25 | | 47 | 51 | 28 |
| <u>299</u> | | | | | | | | | | | | |
| Pithouse E | | | | x | | 23.5 | 105.30 | 4.48 | | 53 | 60 | - |
| <u>1360</u> | | | | | | | | | | | | |
| Pithouse B | | | | x | | 12.5 | | | | 50 | 60 | - |
| Plaza area 1 | | | | | x | 33.6 | 37.80 | 1.13 | | 60 | 42 | 15 |
| <u>1659</u> | | | | | | | | | | | | |
| Protokiva house | | x | x | | | 18.7 | 177.03 | 9.47 | 70 | | | 46 |
| | | | | | | 18.7 | 60.16 | 3.22 | | 52 | 89 | 13 |
| Pithouse C | x | | | | | 6.4 | 20.36 | 3.18 | | 41 | 31 | 20 |
| Pithouse X | x | | | | | 23.9 | 90.73 | 3.80 | 76 | | | 20 |
| Court south | | | x | | | 15.0 | 115.33 | 7.69 | | 61 | 52 | 46 |
| north | | | x | | | 15.0 | 112.09 | 7.47 | | 61 | 57 | 41 |
| <u>629</u> | | | | | | | | | | | | |
| Room 3 fl 2 | | | x | | | 7.6 | 25.33 | 3.34 | | 43 | 53 | 14 |
| <u>628</u> | | | | | | | | | | | | |
| Pithouse E | | | | x | | 14.3 | 70.77 | 4.95 | | 61 | 67 | 22 |
| Pithouse A | | | x | | | 13.1 | 100.62 | 7.68 | | 57 | 64 | 35 |
| Pithouse F | | | x | | | 8.6 | 32.27 | 4.57 | 50 | | | 20 |
| <u>627</u> | | | | | | | | | | | | |
| Room 4 fl 2 | x | | | | | 3.9 | 14.52 | 3.72 | | 44 | 42 | 10 |
| Room 16 fl 4 | x | | | | | 4.0 | 37.15 | 9.29 | | 45 | 42 | 25 |
| fl 3 | x | | | | | 4.0 | 64.04 | 16.01 | 56 | | | 26 |
| <u>627</u> | | | | | | | | | | | | |
| Ramada 5 fl 2 | | | x | | | 11.5 | 64.94 | 5.67 | | 50 | 55 | 30 |
| Ramada 8/3 fl 3/2 | x | | | | | 19.7 | 23.00 | 1.17 | | 44 | 39 | 17 |
| Ramada 10/15 fl 2 | | | x | | | 20.5 | 195.38 | 9.53 | 52 | | | 92 |
| Ramada 6/7 | | | x | | | 18.3 | 132.40 | 7.23 | | 68 | 67 | 37 |
| | | | x | | | 18.3 | 38.99 | 2.13 | | 45 | 50 | 22 |
| Room 23 | | | x | | | 10.0 | 32.52 | 3.25 | | 45 | 46 | 20 |
| Pithouse C | | | x | | | 17.1 | 123.15 | 7.20 | 70 | | | 32 |
| Pit structure F | | | | | x | 12.7 | 119.81 | 9.43 | | 64 | 78 | 24 |
| | 9 | 1 | 14 | 4 | 2 | | | | | | | |

Cir = circular.
 Rect = rectangular.
 Hex = hexagonal.

18 Small Sites

Table 1.1 continued.

| | | Clay-lined | | Slab-lined | | Floor | | Floor m ² | Cm | | | | |
|--------------------|---------|------------|-----|------------|-----|-------|----------------|----------------------|---------|------|-----|-----|-------|
| | | Cir | Rec | Cir | Hex | Rec | m ² | Liters | /liters | Dia. | N-S | E-W | Depth |
| III. A.D. 900-1100 | | | | | | | | | | | | | |
| <u>1360</u> | | | | | | | | | | | | | |
| Room | 6 | | | x | | | 6.1 | 31.81 | 5.21 | 45 | | | 20 |
| Room | 7 | | | x | | | 6.2 | 215.79 | 34.80 | | 71 | 73 | 53 |
| Room | 11 | | | x | | | 5.3 | 83.10 | 15.68 | | 55 | 60 | 32 |
| Kiva | A | | | | x | | 12.8 | 78.68 | 6.15 | | 49 | 58 | 35 |
| <u>299</u> | | | | | | | | | | | | | |
| Kiva | B | | | | x | | 12.6 | 39.60 | 3.14 | | 56 | 42 | 21 |
| <u>629</u> | | | | | | | | | | | | | |
| Plaza | fp 2 | | | x | | | 34.6 | 14.93 | 0.43 | | 30 | 35 | 18 |
| Plaza | fp 5 | | | x | | | 34.6 | 93.04 | 2.69 | | 53 | 82 | 26 |
| Pithouse | 2 | | | | | x | 16.2 | 70.84 | 4.37 | | 44 | 70 | 23 |
| Pithouse | 3 | | | | | x | 8.4 | 55.04 | 6.55 | | 58 | 73 | 13 |
| Room | 2 | | | x | | | 4.2 | 30.79 | 7.33 | | 32 | 38 | 32 |
| Room | 3 | x | | | | | 7.6 | 61.17 | 8.05 | | 58 | 61 | 22 |
| Room | 9 | | | x | | | 9.1 | 56.28 | 6.18 | | 53 | 52 | 26 |
| <u>627</u> | | | | | | | | | | | | | |
| Ramada | 8 fp 1 | x | | | | | 77.0 | 27.14 | 0.35 | | 44 | 52 | 15 |
| | 2 | x | | | | | 77.0 | 47.56 | 0.61 | | 42 | 32 | 18 |
| | 4 | x | | | | | 77.0 | 37.33 | 0.48 | | 53 | 35 | 24 |
| Ramada | 5 fp 1 | x | | | | | 77.0 | 91.93 | 1.19 | | 70 | 83 | 20 |
| Room | 2 fl 2 | x | | | | | 5.2 | 26.04 | 5.01 | | 45 | 56 | 13 |
| | fl 3 | x | | | | | 5.2 | 13.20 | 2.54 | 41 | | | 10 |
| Room | 14 fl 1 | | | x | | | 7.0 | 61.77 | 8.82 | | 59 | 51 | 26 |
| Room | 12 fl 1 | | | | | x | 7.0 | - | - | | 48 | 56 | - |
| Room | 7 fl 1 | x | | | | | 6.0 | 65.42 | 10.90 | 70 | | | 17 |
| Room | 8 fl 1 | | | | | x | 8.7 | 5.70 | 0.66 | | 25 | 38 | 6 |
| <u>627</u> | | | | | | | | | | | | | |
| Kiva | G | | | | | x | 10.4 | 62.72 | 6.03 | | 50 | 64 | 49 |
| Kiva | D | | | | | x | 9.8 | 69.75 | 7.12 | | 45 | 50 | 31 |
| | | 8 | - | 8 | 2 | 6 | | | | | | | |
| IV. post A.D. 1100 | | | | | | | | | | | | | |
| <u>627</u> | | | | | | | | | | | | | |
| Kiva | E | | | | | x | 9.9 | 32.13 | 3.25 | | 35 | 51 | 18 |
| Room | 6 | x | | | | | 5.8 | 8.51 | 1.47 | | 40 | 45 | 6 |
| Ramada | 4 fp 12 | | | | | x | - | 50.00 | - | | 63 | 36 | 22 |
| | fp 10 | | | x | | | - | 79.74 | - | 65 | | | 24 |
| <u>633</u> | | | | | | | | | | | | | |
| Room | 7 fl 1 | x | | | | | 12.1 | 3.22 | 0.27 | | 30 | 34 | 4 |
| | fl 2 | x | | | | | 12.1 | 44.60 | 3.69 | 52 | | | 21 |
| <u>629</u> | | | | | | | | | | | | | |
| Kiva | | | | | | x | 11.3 | 68.31 | 6.05 | | 54 | 55 | 23 |
| Plaza | fp 6 | | | | | x | 18.0 | 83.00 | 4.61 | | 55 | 75 | 25 |
| | | 3 | - | 2 | - | 3 | | | | | | | |

Cir = circular.
 Rect = rectangular.
 Hex = hexagonal.

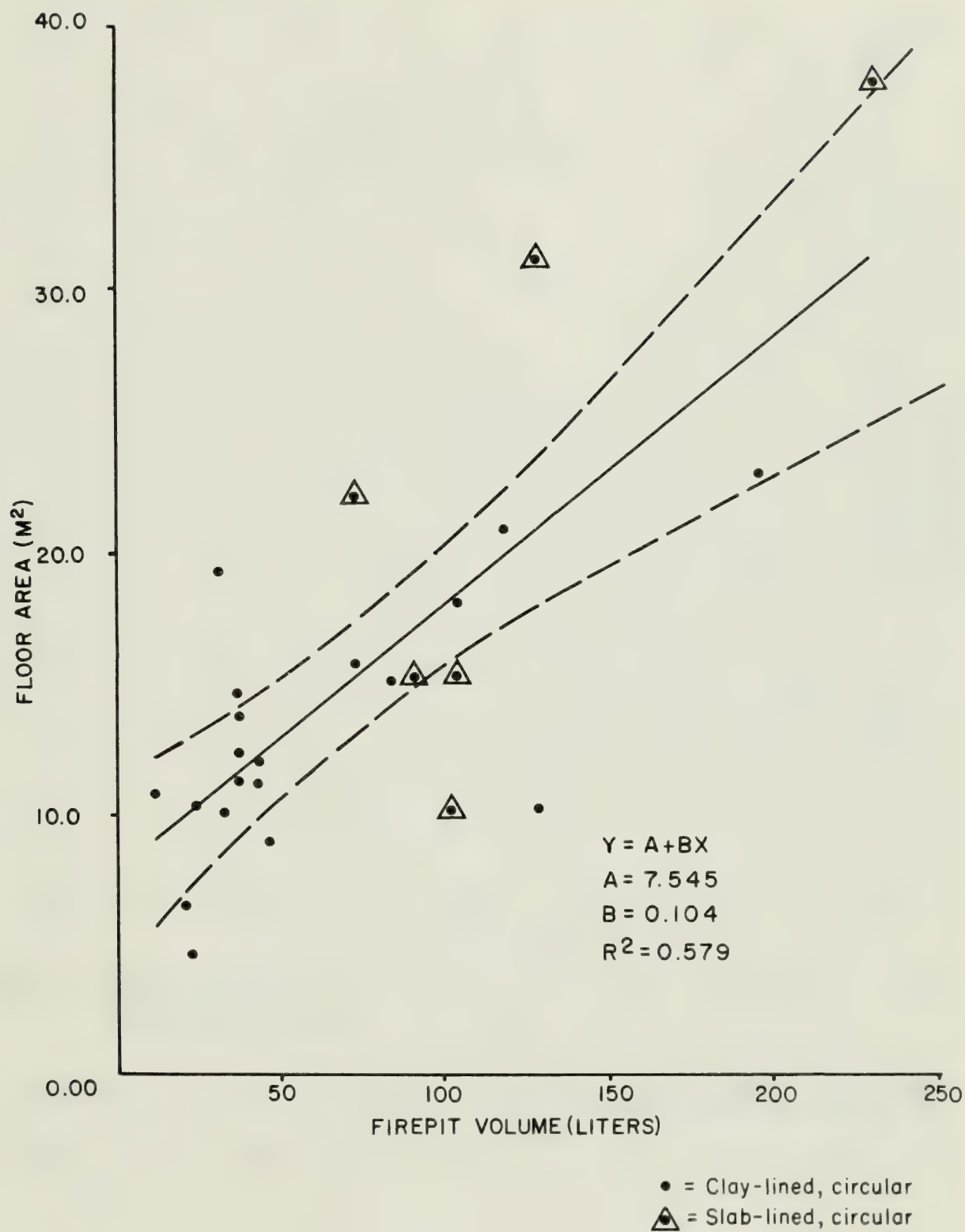


Figure 1.3. Pithouse floor area (Y) and firepit volumes (X), A.D. 500-700.

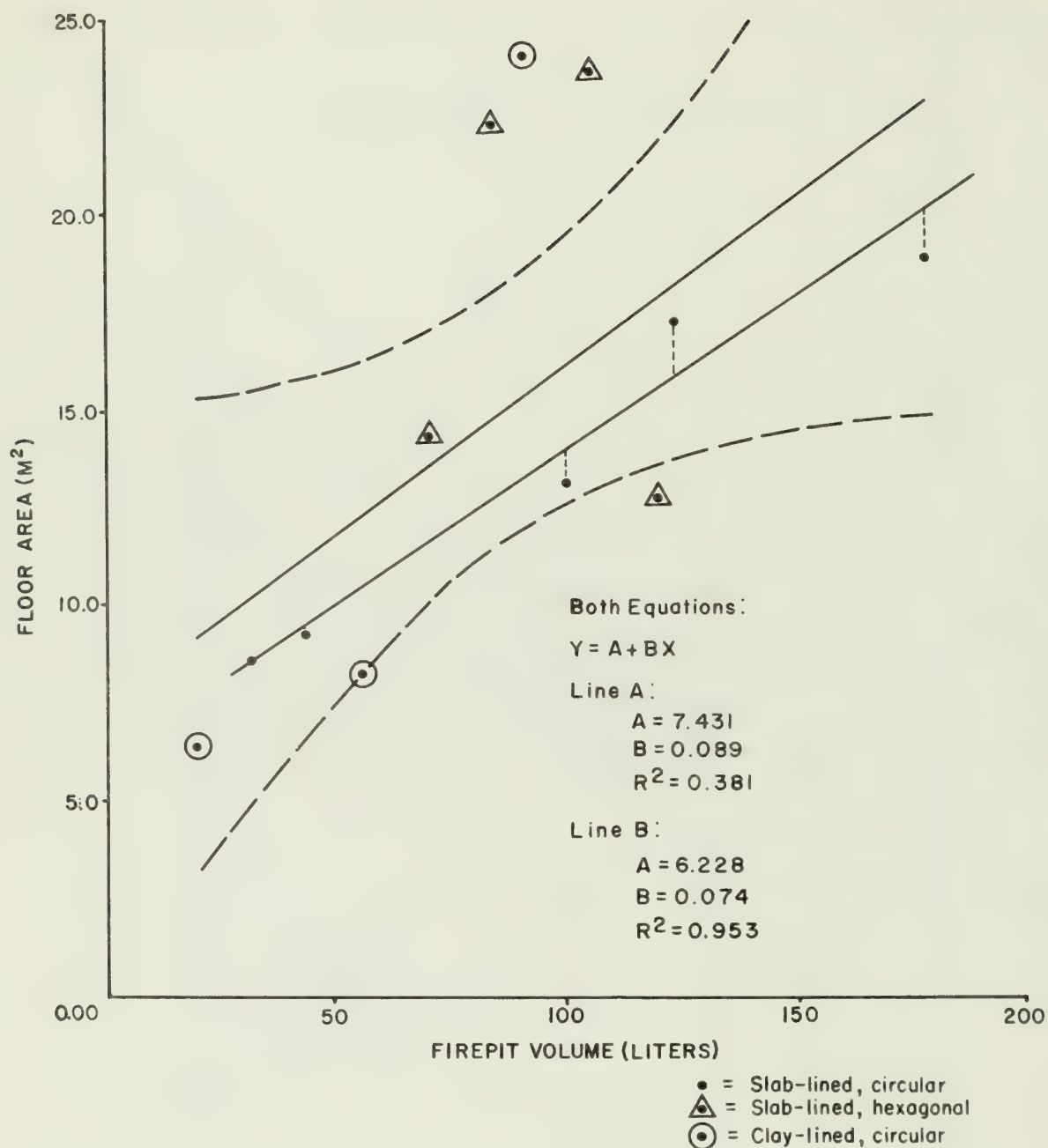


Figure 1.4. Pithouse floor area (Y) and firepit volumes (X), A.D. 700-900.

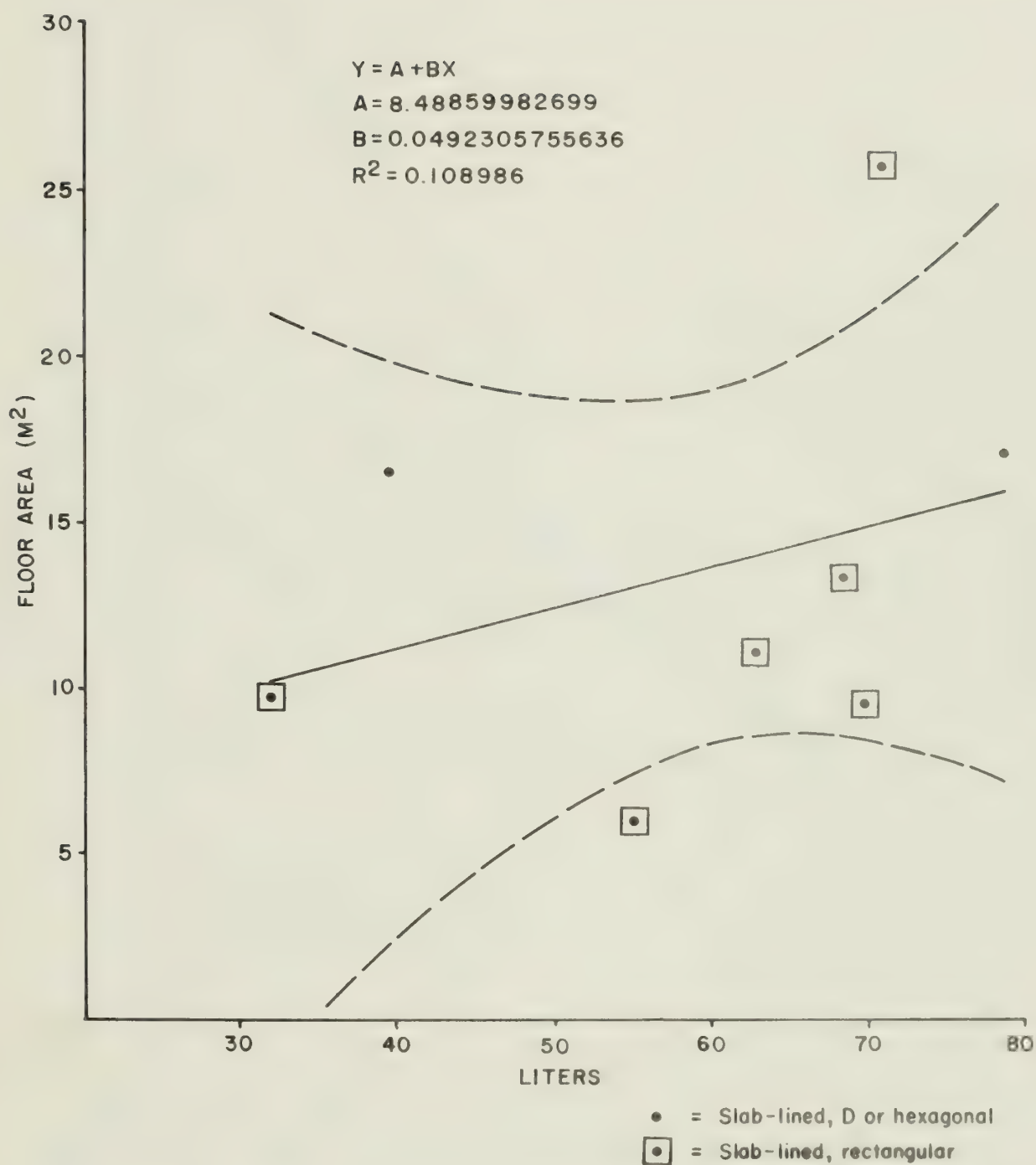


Figure 1.5. Kiva floor areas (Y) and firepit volumes (X), A.D. 900-1100+.

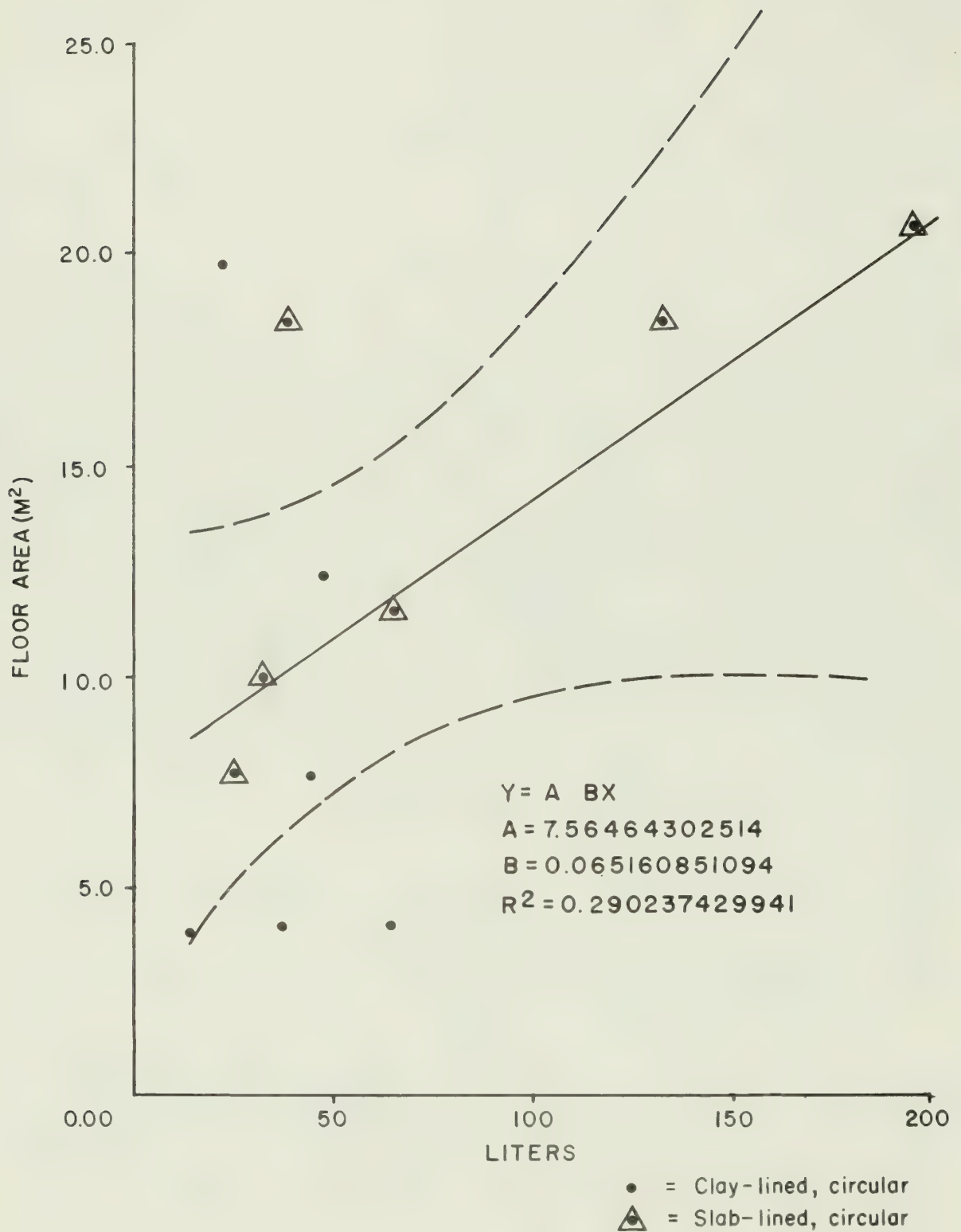


Figure 1.6. Room floor areas (Y) and firepit volumes (X), A.D. 700-900.

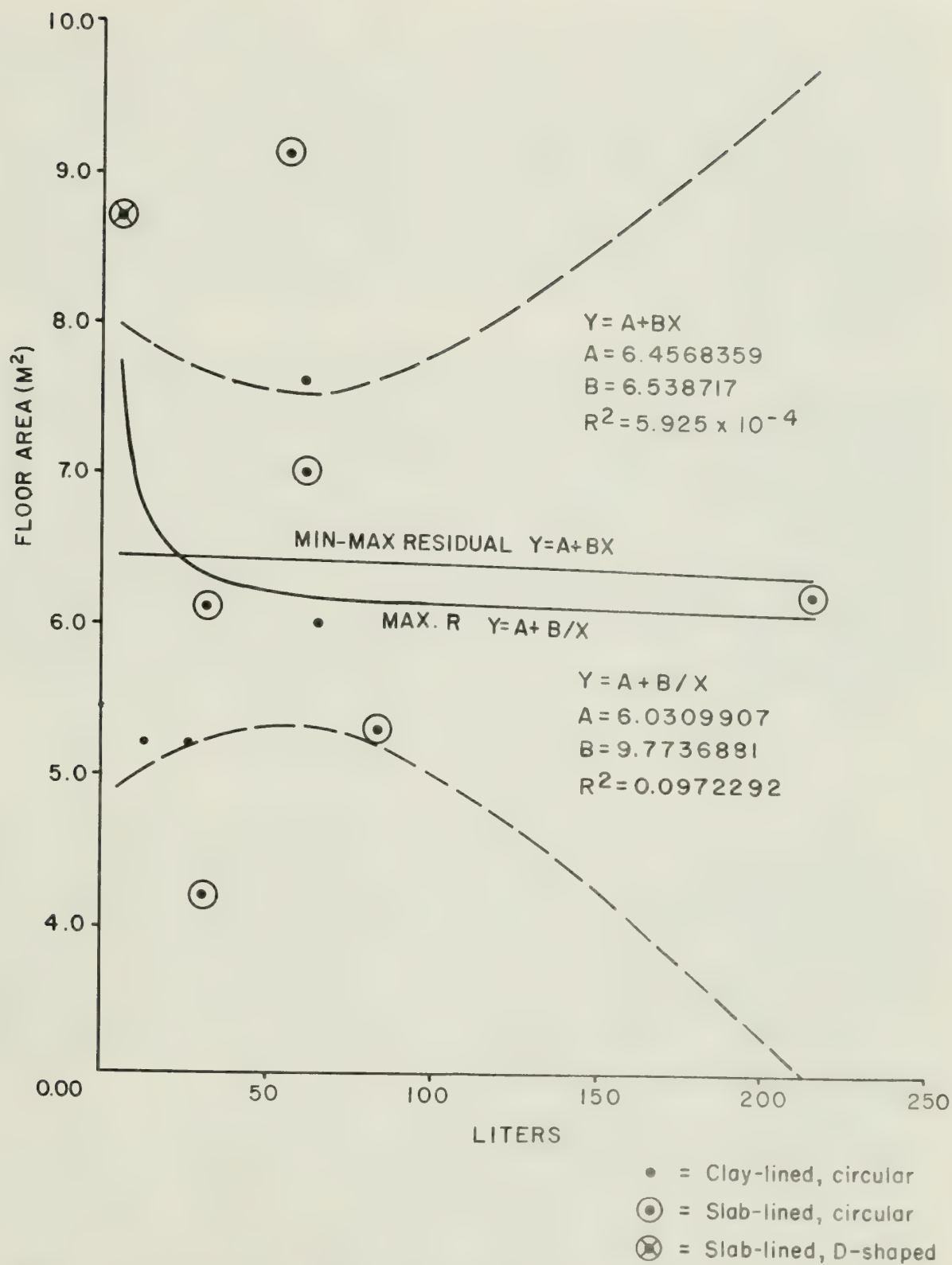


Figure 1.7. Room floor areas (Y) and firepit volumes (X), A.D. 900-1100.

generally without interpretive comment, but a cautionary word must be interjected. Problems with the reuse of tree-ring dated architectural wood or fireplace charcoals are generally known (see Bannister 1965: 123-128); however, there seem to be unresolved laboratory problems resulting in widely divergent dates for comparable radiocarbon samples. Several charcoal samples from contemporaneous (often the same) features were submitted to two radiocarbon labs. The outcome of this exercise was less than satisfactory, resulting in serious date discrepancies between the two labs and inconsistencies in some intra-sample analyses. Dicarb (Di) and Smithsonian Institution (SI) radiocarbon labs processed the limited number of samples presented here, but dates from specimens processed by SI are apparently more unreliable.

The dating of archaeomagnetic samples was most inconsistent in the smaller sites. Archaeomagnetic dating was done in the Earth Sciences Observatory (ESO) at the University of Oklahoma by Dr. Robert Dubois. Windes (1980a) discusses problems with archaeomagnetic dating in more detail from the perspective of Pueblo Alto. Comment on Tables 1.2-1.7 herein is limited to indications of which samples exhibit the greatest discrepancy from the probable "real" date and are therefore unreliable. Although archaeomagnetic dates included are clearly inaccurate as indicated by stratigraphic, architectural, and ceramic associations, they are not specifically discussed. Continual reevaluation of Chaco's archaeomagnetic record suggests that other discrepancies or inaccuracies may occur. For these reasons, care must be used in assessing the archaeomagnetic record presented in the tables.

Dendrochronology and Wood Use

Both the dendrodates and the resulting interpretive caveats are relatively direct and need no elaboration here; however, using only dated wood to evaluate wood use and the potential sources of timber in Chaco has frequently been misleading. The paucity of wood samples and tree-ring dates from small sites is a common problem, one which led to Gladwin's proposals concerning the noncontemporaneity of "Hosta Butte" sites with the "Bonito Phase" towns based on his speculations concerning wholesale robbing of wood from small sites to build the Great Houses (Gladwin 1945). Although this has been rightly discredited (Bannister 1965: 183; Vivian and Mathews 1965: 107-108), the use of wood in Chacoan architecture varies and changes through time.

Dendrochronological analysis involves species identification of both datable and undatable specimens. Richard L. Warren of the Tree-Ring Laboratory provided most of the species identifications. These identifications are presented on Table 1.2 and suggest a change in the use of woody species through time. Table 1.3 attempts to segregate wood from architectural, firepit, and unknown contexts based on excavators' assessments and specific proveniences. Inspection of the dated materials in the site leaves an erroneous impression of the utilization of particular species in differing contexts. Undatable architectural wood of Populus and other nonconiferous

Table 1.2. Wood identified by tree-ring lab.

| | <u>Pnn</u> | <u>Jun</u> | <u>Doug.</u> <u>Fir</u> | <u>PP</u> | <u>Pop</u> | <u>Non-</u> <u>Conifer</u> | <u>N</u> |
|---------------------|-------------------|------------|----------------------------|-----------|------------|-------------------------------|----------|
| (1) 29SJ 423 BM3 | 39 | 25 | | 1 | 11 | 3 | 79 |
| (1) 29SJ1659 BM3 | 5 | 8 | | | | | 13 |
| (1) 29SJ 299 BM3 | 32 | 59 | | | 8 | 2 | 101 |
| (2) 29SJ 628 BM3-P1 | 2 | | | 1 | | | 3 |
| (2) 29SJ 721 BM3-P1 | 11 | | | | 1 | 3 | 15 |
| (3) 29SJ 724 P1 | 1 | 7 | | | | 2 | 10 |
| (4) 29SJ 629 P1-P3 | 15 | 38 | 3 | 54 | 35 | 19 | 164 |
| (4) 29SJ1360 P1-P3 | 3 | | | | | | 3 |
| 29SJ 633 | n o s a m p l e s | | | | | | |
| (4) 29SJ 627 P1-P3 | 4 | 1 | 3 | 2 | | 2 | 12 |
| N | 112 | 138 | 6 | 58 | 55 | 31 | 400 |

| | <u>Pnn</u> | | <u>Jun</u> | | <u>D.F.</u> | | <u>PP</u> | | <u>Pop</u> | | <u>N.con.</u> | | <u>N</u> | <u>%</u> |
|----------|------------|----------|------------|----------|-------------|----------|-----------|----------|------------|----------|---------------|----------|----------|----------|
| | <u>n</u> | <u>%</u> | <u>n</u> | <u>%</u> | <u>n</u> | <u>%</u> | <u>n</u> | <u>%</u> | <u>n</u> | <u>%</u> | <u>n</u> | <u>%</u> | | |
| 1-BM3 | 76 | 39 | 92 | 48 | | | 1 | - | 19 | 10 | 5 | 3 | 193 | 48% |
| 2-BM3-P1 | 13 | 72 | | | | | 1 | 5 | 1 | 5 | 3 | 17 | 18 | 4% |
| 3-P1 | 1 | 10 | 7 | 70 | | | | | | | 2 | 20 | 10 | 3% |
| 4-P1-P3 | 22 | 12 | 39 | 22 | 6 | 3 | 56 | 31 | 35 | 20 | 21 | 12 | 179 | 45% |
| N | 112 | | 138 | | 6 | | 58 | | 55 | | 31 | | 400 | |
| % | | 28 | | 34 | | 2 | | 14 | | 14 | | 8 | | 100% |

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Table 1.3. Postulated use-contexts of species identified wood.

| | | | <u>Architecture</u> | <u>Firepits</u> | <u>Floor fill poss. arch. unknown</u> | <u>Fill unknown</u> | <u>N</u> | <u>N</u> |
|----------|---------|--|---------------------|-----------------|---|-------------------------|----------|----------|
| 29SJ 423 | Pnn | | 24 | 5 | | 10 | 39 | |
| | Jun | | 20 | 1 | | 4 | 25 | |
| | PP | | 1 | | | | 1 | |
| | Pop | | 10 | | | 1 | 11 | |
| | non-con | | 2 | | | 1 | 3 | 79 |
| 29SJ1659 | Pnn | | 5 | | | | 5 | |
| | Jun | | 8 | | | | 8 | 13 |
| 29SJ 628 | Pnn | | | | | 2 | 2 | |
| | Jun | | | | | 1 | 1 | 3 |
| 29SJ 299 | Pnn | | 31 | | | 1 | 32 | |
| | Jun | | 59 | | | | 59 | |
| | Pop | | 8 | | | | 8 | |
| | non-con | | 2 | | | | 2 | 101 |
| 29SJ 721 | Pnn | | | 11 | | | 11 | |
| | Pop | | | | | 1 | 1 | |
| | non-con | | | 1 | | 2 | 3 | 15 |
| 29SJ 724 | Pnn | | 1 | | | | 1 | |
| | Jun | | | 2 | 2 | 3 | 7 | |
| | non-con | | | | | 2 | 2 | 10 |
| 29SJ 629 | Pnn | | | | 14 | 1 | 15 | |
| | Jun | | | | 37 | 1 | 38 | |
| | PP | | | 2 | 52 | | 54 | |
| | DF | | | | | 3 | 3 | |
| | Pop | | 1 | | 32 | 2 | 35 | |
| | non-con | | | | 19 | | 19 | 155 |
| 29SJ1360 | Pnn | | 1 | | 1 | 1 | | 3 |
| 29SJ 627 | Pnn | | | 3 | | 1 | 4 | |
| | Jun | | 1 | | | | 1 | |
| | PP | | 1 | | | 1 | 2 | |
| | DF | | | | | 3 | 3 | |
| | non-con | | | | | 2 | 2 | 12 |
| N | | | 175 | 25 | 157 | 43 | | 400 |
| % | | | 44% | 6% | 39% | 11% | | 100% |

types increases through time, though this is not represented on the tables.

Although nonconiferous woods were noted as architectural materials in the Pueblo III kiva at 29SJ 629 and in the Basketmaker Great Kiva at 29SJ 423, differences in use, for example, as main roofing members at 29SJ 629/423 versus secondary leaners in the latter case, are suspected. Pinyon and juniper were apparently the most extensively used woods in the Basketmaker and Pueblo I periods. Despite the increasing use of Ponderosa and Populus in later construction and firepits, pinyon and juniper continued to be used and apparently were favored timbers for load-bearing (vertical) posts throughout small site construction. The impression that Ponderosa was increasingly used in later small sites is supported by dated wood from Bc 51, 59, 192, 362, and Leyit Kin (Bannister 1965: 132, 135-136, 174) although evidence from the last two sites is not as supportive. Nevertheless, the use of structural wood in small sites is in marked contrast with timbers employed in the nearby Great Houses where Ponderosa and occasionally Douglas fir and white fir were largely used (Bannister 1965; Hawley 1934).

The occasional mixing of these species with the abundant pinyon and juniper firepit trash prompted Hawley to postulate a generally favorable environment and to state:

"If juniper wood were at hand, pinyon, pine, or fir branches would never have been carried sixty miles, or even half that distance, for firewood. We are thus brought to the conclusion that at least on the Continental Divide and probably to some extent in the canon and on the mesas an evergreen forest did exist" (Hawley 1934:66).

Current research (Love 1977, 1980; Powers et al. 1983) suggests that less favorable conditions existed, similar to those of today. The difference in timber requirements between the two types of sites is probably functionally related; large rooms in Great Houses required larger spanning and support members than analogous construction in the small sites (Lekson 1981:31). This is not to suggest that the impact of the Anasazi on the available wood supply was not severe (see Betancourt and Van Devender 1981), but that the environment may not have been as lush as traditionally pictured. Smaller construction units may dictate selection of smaller timbers, but this restriction is not applicable to fuel sources. The dearth of Ponderosa and fir in firepits suggests that, although these sources may not have been absent in the canyon, their distribution may have been severely limited. Ponderosa and Populus are poor fuel woods (spark producing, low heating qualities and/or extremely sooty) in comparison to pinyon and juniper and their increased use for firewood in later small sites may represent not only scavenging, but severe depletion of the primary fuel woods.

ARCHITECTURAL TRENDS

A short discussion of architectural trends is presented to preface individual summaries as well as introduce the question of cultural change in Chaco. The general architectural developments from Basketmaker pit-houses through the development of surface structures in Pueblo I and II into living and storage rooms concomitant with the metamorphosis of the habitation pit structures into kivas are all evident in this series of small sites (Gillespie 1976).

Basketmaker (ca. A.D. 500-700) pithouses exhibit a wide range in architectural form and size. Changes in pithouse form are probably both functionally and temporally related. For example, those in loose, sandy soil (mesa tops) are frequently slab-lined while those in more consolidated soils (bottomlands) are not (compare Shabik'eshchee with 29SJ 299 or 29SJ 628). Dates and house form suggest that those at 29SJ 423 are the earliest excavated in the canyon although similar structures can be found at 29SJ 721 (Pithouse C) and Shabik'eshchee Village (Pithouse L). These pithouses are small, shallow, peripherally ringed by upright slabs, often exhibit plaster-lined firepits with low adobe ridges extending to the two southern "corners" of the structure, and have post roof supports centered in each quadrat of the floor. It is possible that this simple plan was carried over from Basketmaker II structures (Bullard 1962; Morris and Burgh 1954).

Later Basketmaker III pithouses (e.g., post-575) appear to be constructed slightly deeper, exhibit distinct benches on which wall-forming leaners rested, and have a back-to-back D-shaped floor plan for the main room and antechamber, with storage space in the form of corner bins and wall niches. Occasionally antechambers in later structures repeat the floor plan characteristics of earlier pit structures and exhibit central adobe-lined firepits with the low adobe ridges extending to the corners.

There is an impression that pithouses constructed after A.D. 750 are larger than their predecessors. As can be seen in Table 1.4, if the contribution of Pithouse C at Shabik'eshchee were omitted, such would be the case (less C $x=17.5$, $sd=4.5$). Here the difference in location may be significant, although the sample is too small to permit confidence. With the entrenchment of occupation in the bottomlands, beginning in Pueblo I (Hayes et al. 1981), it is possible that upland occupation/construction would have been restricted in size as well as scope. Nevertheless, through time (Pueblo I - early Pueblo II) pithouse construction becomes more consistently rounder and deeper, the antechamber is reduced to a ventilation shaft, and surface storage cists begin to formalize in shape, placement, and arrangement. Discussions of 29SJ 628 and 29SJ 299 provide ample comment on the trends and covariation of where and when certain storage facilities seem to appear.

It is with sites of the Pueblo I period (ca. A.D. 700-900) that architectural terminology among the authors begins to diverge. Shallow and deep tub-shaped, contiguous storage rooms are developed from the formerly scattered cists to the west or northwest of the pit structure. These rooms are fronted by a roofed ramada area under which temporary (?) storage and heat-

Table 1.4. Floor and storage areas in habitation pit structures.

| Site | Structure # | <u>m² behind wing walls</u> | <u>Total floor area</u> | <u>% floor area behind wings</u> |
|---------------------|-------------|--|-----------------------------|--------------------------------------|
| BM3 (pre A.D. 750) | | | | |
| 29SJ1659 | Y | 2.7 | 20.9 | 13% |
| | H | 2.1 | 11.2 | 19% |
| | L | 2.2 | 11.3 | 19% |
| | M | 4.3+ | 22.2 | 19% |
| | N | 3.3 | 15.2 | 22% |
| | P | 1.8 | 6.5- | 28% |
| | Q | 2.6 | 15.8 | 16% |
| | D | 3.3 | 15.3 | 22% |
| | E | 2.4 | 13.8 | 17% |
| | F | 1.5- | 10.1 | 15% |
| | F-1 | 6.4+ | 31.4+ | 20% |
| | G | 1.9 | 10.2 | 19% |
| 29SJ 299 | A | 2.7 | 18.1 | 15% |
| | D | 3.4 | 12.1 | 28% |
| 29SJ 628 | C | 5.4+ | 38.0+ | 14% |
| | D | 3.6 | 15.4 | 23% |
| | E | 2.2 | 12.4 | 18% |
| | G | 2.2 | 12.4 | 19% |
| P-1 (post A.D. 750) | | | | |
| 29SJ1360 | B | 1.8 | 12.6 | 14% |
| 29SJ1659 | C | 0.8- | 6.4- | 13% |
| 29SJ 724 | A | 4.1+ | 22.1+ | 19% |
| 29SJ 627 | C | 2.3 | 17.2 | 13% |
| 29SJ 629 | 2 | 4.7+ | 16.2 | 29% |
| 29SJ 299 | E | 2.2 | 23.5+ | 9% |
| 29SJ 628 | A | 1.7 | 13.1 | 13% |
| BM3: | | | | |
| | x | 3.0 | 16.2 | |
| | sd | 1.3 | 7.8 | |
| P-1: | | | | |
| | x | 2.5 | 15.9 | |
| | sd | 1.4 | 5.9 | |

- = 1 sd under the mean; + = 1 sd over the mean.

ing features cluster. Often certain clusters are delineated by low, narrow walls made of either adobe turtlebacks or (later) simple masonry set in ample mortar. These ephemeral wall bases are taken as indicative of insubstantial walls rising to a limited height (<1.5 m). Truell refers to such areas as ramadas and distinguishes them as open or partially walled; Windes refers to such areas as living rooms (29SJ 627 and 29SJ 724)--a semantic difference but one which might strongly influence interpretations of site demography. These areas of domestic activity form the basis of further construction units or suites. These "living rooms" are usually backed by two "storage" rooms which, together, consistently equal about two-thirds the floor space of the associated living room. Contiguous sets of such living/storage room suites along with some associated open ramadas make up the recognizable roomblock. Through time, pit structures were constructed closer to these "roomblocks" and were being built with fewer habitation features--such as mealing bins, storage pits, wall niches, ancillary heating pits, and distinctive wing walled sections. Habitation pit structures built after A.D. 750 seem to be more uniform in size than their predecessors (Table 1.4), which makes variations in the size of structures of the period all the more noticeable.

Although researchers tend to consider differentially sized rooms as temporally cohesive architectural units throughout Chaco's occupation, this pattern is not as clear in small sites occupied after A.D. 975-1000. Even though the greatest density of domestic features continues to lie in rooms or plaza areas between pit structures and the rooms furthest from them, the dichotomy of room shapes seems to lose definition. Most rooms are small, square structures with about 6 m² of floor area (29SJ 627 third construction and 29SJ 1360), although some differentiation of room sizes continues (29SJ 633). Table 1.5 generally reflects this contraction of living space through time, i.e., small pueblos are not as dispersed as Basketmaker communities and the space per unit as measured in pit structures steadily declines.

Kivas are built quite close to the roomblock and exhibit a dearth of floor features beyond those designed for heating and ventilation. Pit structures and rooms occur in about a 1:6 ratio, but range from 1:9 (29SJ 724) to 1:0 (29SJ 721). After the mid-900s a southern recess is often present. The culmination of the gravitation of pit structures toward the rooms is actual incorporation into the roomblock, a familiar feature of the "Bc" small sites around South Gap. Although not excavated in the Chaco Center's small site investigations, an enclosed kiva was identified at 29SJ 633. Finally, the kiva's heating, ventilation, and southern recess features attained a consistent north-south alignment in this period (e.g., post-1000) in contrast to the less consistent orientation--usually easterly--of earlier pit structures.

Two major shifts in small site architecture are apparent. Basketmaker pithouses are associated with circular, noncontiguous, surface storage cists. These are followed by occupations in similar pithouses augmented by architecturally patterned, contiguous surface rooms dichotomized into living/working and storage areas. The last architectural pattern consists

Table 1.5. Architectural areas.

General site size:

| | # <u>pit structures</u> | Site size <u>m²</u> | <u>\bar{x}</u> | <u>m²/unit</u> |
|------------|----------------------------|-----------------------------------|-----------------------------|---------------------------|
| BM3 | | | 3333 | |
| 29SJ 423 | 7 | 8436 | | 1205 |
| 29SJ 299 | 2 | 1426 | | 713 |
| | 3 | | | 479 |
| 29SJ 628 | 6 | 469 | | 78 |
| 29SJ1659 | 21 | 3000 | | 143 |
| P 1 | | | | |
| 29SJ 299 | 1 | 192 | | 192 |
| 29SJ 724 | 1 | 285 | | 285 |
| 29SJ 627-1 | 2 | 440 | | 220 |
| 29SJ1659* | 1 | 232 | | 232 |
| P 2 | | | 144 | |
| 29SJ 627-2 | 3 | 520 | | 174 |
| 29SJ 629 | 2 | 228 | | 114 |
| P 3 | | | 100 | |
| 29SJ 627-3 | 3 | 364 | | 122 |
| 29SJ 629 | 1 | 55 | | 55 |
| 29SJ 633 | 3 | 364 | | 122 |

Summary of pit structure sizes:

| | n | \bar{x} | sd | cv |
|------|----|-----------|-----|------|
| BM 3 | 18 | 16.2 | 7.8 | 0.48 |
| P 1 | 7 | 15.9 | 5.9 | 0.37 |
| P 3 | 4 | 11.2 | 1.3 | 0.12 |

* Pithouse C + court ca. 15.84 m².

of a roomblock of morphologically undifferentiated rooms associated with stylized "nonsecular" kivas.

Although there is a slight construction lag and certainly a quantum change of scale, the general morphology of this architectural change is mirrored in town layouts. Some (Vivian and Mathews 1965) have interpreted the later "McElmo" Great Houses as site unit intrusions, but the comparative "change" in architecture between such sites as early Pueblo Bonito and Kin Kletso are no greater than contemporary and parallel changes in architecture between the first and third construction episodes at 29SJ 627. In other words, viewed from the perspective of small site architectural plans, town organizations are large-scale versions of contemporary villages and are not anomalous (other than the scale) in terms of early or late architectural expressions. As Truell suggests (1979), small site architecture may be a first approximation of later town plans; architectural patterning or improvements may be a "two-way street" with some innovations first expressed in towns later appearing as small site features and modifications.

Architectural Change

One of the main underlying subjects in several reports is an attempt to document social and/or functional changes in pit structures and rooms which may contribute to the architectural evolution of small sites. The comparison of pithouse size and construction techniques revealed some disproportionally large "storage" areas separated by wing walls in pithouses. This, in conjunction with similar differences in construction of surface rooms, suggested that certain sites were possible multi-family units. Pueblo I sites, following the general occupational abandonment of mesa tops, were most often cited as the first potential loci of multi-family units.

The identification of Pueblo I pithouses as evidence of the first period of multiple family dwellings suggests that Basketmaker habitations were constructed more on a nuclear or single family (extended) basis. One possible means of examining this suggestion is through studying change in firepits. Firepits enjoy high visibility among archaeologists and constitute a relatively abundant, easily identified, and stable feature of the Anasazi record. The size of formal, multi-functional firepits should display a high correlation with the number of users. The number of users, or family, would affect house size (Cook and Heizer 1965) suggesting a high correlation between firepit size and floor area. Subsequent changes in this firepit/floor area relationship might be seen as the result of change in the group's social/economic structure, as opposed to simple changes in numbers. The resultant diversity of firepits would produce a weaker correlation between firepit size and floor area. Therefore, one might suggest, if Basketmaker III pithouses have a multipurpose firepit used by a nuclear group, and Pueblo I pithouses are multi-family efforts, there should be greater standardization of firepit size in relation to floor areas in the earlier structures.

Excluded from consideration are small, unlined, oval "heating pits" frequently encountered throughout sites and consistently discussed as separate and specialized features. A series of regressions plotting pithouse and room floor areas against firepit volume through time was constructed (Figures 1.2-1.6) from data provided in Table 1.1. Tables 1.6 and 1.7 provide information on the types, distribution, and description of firepits through time, architectural affiliation, and firepit type. Several aspects of these graphs are undoubtedly debatable, particularly the choice of firepit volume rather than surface area and the assumption that firepits are task specific features associated with a particular amount of site space. However, Figure 1.3 suggests there is a strong positive relationship between firepit size and the pithouse floor area ($df=23$, $p>.001$) during the Basketmaker period. The bigger the house, the larger the accompanying firepit. Above a certain size (about 75 liters) it appears to have become feasible to line the firepit with upright slabs. This suggests that Basketmaker habitations were, as traditionally perceived, multipurpose structures with illumination, heating, and culinary needs largely served by a single, central hearth.

In later pit structures there is a weaker relationship between firepit size and floor space. Pueblo I pit structures, with firepits of earlier circular upright slab construction, appear to have a stronger correlation between pithouse size and firepit size (Figure 1.4, line D), but the dispersion of the entire population suggests the breakdown of the earlier pattern of multipurpose pithouse use in favor of differentiated features and space. The next period, Pueblo II-III, exhibits an even lower correlation between kiva space and firepit volume (Figure 1.5). Although there are considerably fewer pairs involved, the dispersion can be seen to decrease with the exclusion of the D-shaped or hexagonal slab-lined firepits. Circular and rectangular slab-lined firepits exhibit higher r^2 -square values when plotted separately ($r^2=0.963$ and 0.201 respectively), which suggests that the hexagonal group may be a transitional type of firepit constructed during a period of architectural change, possibly involved with the restructuring of the heating-ventilation system from below-floor to above-floor vents.

Differentiation of "firepits" into functionally specific features is most apparent in the rooms. From the outset, the size of the firepit exhibits a rather poor correlation (Figure 1.6) with the floor area, suggesting specialization for firepit use occurred early in the use of surface rooms. The continued trend of diversity in firepit and room function can be suggested by the increasingly weak relationship of firepit to room size after A.D. 900 as well as the differing distributions of slab-lined and clay-lined firepits (Figure 1.7). From this it might be suggested that outsized firepits in small rooms indicate special processing rooms, such as drying, smoking, and/or storage, as opposed to habitation rooms. The size of the firepit generally does not vary with the size of the room. With the standardization of room shapes and sizes, firepits and probably other domestic features proliferated in an ever widening array of shapes and sizes. A direct transferral of the multipurpose aspects of the pit-

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Table 1.6. Distribution of firepit types in small sites.

| | <u>Period</u> | <u>Clay-lined</u> | | <u>Slab-lined</u> | | | <u>N</u> | <u>N</u> |
|-------------|---------------|-------------------|-------------|-------------------|------------|-------------|----------|----------|
| | | <u>Cir</u> | <u>Rect</u> | <u>Cir</u> | <u>Hex</u> | <u>Rect</u> | | |
| Pithouses | 1 | 20 | | 6 | | 1 | 27 | |
| | 2 | 3 | 1 | 5 | 4 | | 13 | |
| | 3 | | | | | 2 | 2 | |
| | 4 | | | | | | - | 42 |
| Kivas | 1 | | 1 | | | 1 | 2 | |
| | 2 | | | | | 1 | 1 | |
| | 3 | | | | 2 | 2 | 4 | |
| | 4 | | | | | 2 | 2 | 9 |
| Rooms | 1 | | | | | | - | |
| | 2 | 5 | | 1 | | | 6 | |
| | 3 | 4 | | 6 | | 2 | 12 | |
| | 4 | 3 | | | | | 3 | 21 |
| Extra-Mural | 1 | | | | | | | |
| | 2 | 1 | | 8 | | 1 | 10 | |
| | 3 | 4 | | 2 | | | 6 | |
| | 4 | | | 2 | | 1 | 3 | 19 |
| N | | 40 | 2 | 30 | 6 | 13 | | 91 |

| | | Clay-lined | | | | Slab-lined | | | | | | |
|----------------|---|------------|-----|------|----|------------|-----|-----|----|------|-----|----|
| | | Cir | | Rect | | Cir | | Hex | | Rect | | |
| | | n | %* | n | % | n | % | n | % | n | % | N |
| <u>Periods</u> | 1 | 20 | 66 | 1 | 3 | 6 | 21 | | | 2 | 7 | 29 |
| | 2 | 9 | 30 | 1 | 3 | 14 | 47 | 4 | 13 | 2 | 7 | 30 |
| | 3 | 8 | 33 | | | 8 | 33 | 2 | 8 | 6 | 25 | 24 |
| | 4 | 3 | 38 | | | 2 | 25 | | | 3 | 38 | 8 |
| N | | 40 | 44% | 2 | 2% | 30 | 33% | 6 | 7% | 13 | 14% | 91 |

* all % are row %.

Cir = circular.

Rect = rectangular.

Hex = hexagonal.

Table 1.7. Descriptive statistics on small site firepits.

| <u>Period</u> | | <u>Pit structures</u> | | <u>Rooms</u> | | <u>Extra- mural</u> | | <u>Great Kivas</u> | | <u>All</u> |
|--------------------------------|-----------|---------------------------|-------|--------------|-------|-------------------------|-------|------------------------|--------|------------|
| | | n | | n | | n | | n | | n |
| Liters in firepit/time period: | | | | | | | | | | |
| 1 | | 26 | | | | | | 2 | 28 | |
| | \bar{x} | | 73.83 | | | | | | 227.25 | 84.78 |
| | s_1 | | 53.98 | | | | | | 54.38 | 66.53 |
| | cv | | 73 | | | | | | 24 | 78 |
| 2 | | 13 | | 6 | 10 | | | | 29 | |
| | \bar{x} | | 85.32 | | 38.82 | | 80.53 | | | 73.18 |
| | s_2 | | 44.23 | | 17.42 | | 56.04 | | | 46.62 |
| | cv | | 52 | | 45 | | 70 | | | 64 |
| 3 | | 6 | | 11 | 6 | | | | 23 | |
| | \bar{x} | | 62.77 | | 59.18 | | 51.99 | | | 59.55 |
| | s_3 | | 13.88 | | 57.25 | | 33.18 | | | 41.44 |
| | cv | | 22 | | 97 | | 64 | | | 70 |
| 4 | | 2 | | 3 | 3 | | | | 8 | |
| | \bar{x} | | 50.22 | | 18.78 | | 70.88 | | | 46.17 |
| | s_4 | | 25.58 | | 22.52 | | 18.16 | | | 30.34 |
| | cv | | 51 | | 120 | | 26 | | | 66 |

Floor area/liter of firepit:

| | | | | | | | | | | |
|---|-----------|----|------|----|------|--|------|---|------|------|
| 1 | | 25 | | - | | | | 2 | 28 | |
| | \bar{x} | | 4.81 | | | | | | 3.15 | 4.60 |
| | s_1 | | 2.60 | | | | | | .16 | 2.53 |
| | cv | | 54 | | | | | | 5 | 55 |
| 2 | | 13 | | 6 | 10 | | | | 29 | |
| | \bar{x} | | 5.78 | | 7.01 | | 4.81 | | | 5.61 |
| | s_2 | | 2.26 | | 4.93 | | 3.06 | | | 3.20 |
| | cv | | 39 | | 70 | | 64 | | | 57 |
| 3 | | 6 | | 11 | 6 | | | | 23 | |
| | \bar{x} | | 5.56 | | 9.56 | | .95 | | | 6.27 |
| | s_3 | | 1.50 | | 9.29 | | .90 | | | 7.29 |
| | cv | | 27 | | 97 | | 95 | | | 116 |
| 4 | | 2 | | 3 | - | | | | 5 | |
| | \bar{x} | | 4.65 | | 1.81 | | | | | 3.22 |
| | s_4 | | 1.98 | | 1.74 | | | | | 2.09 |
| | cv | | 43 | | 96 | | | | | 65 |

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Table 1.7 continued.

| <u>Period</u> | Clay-lined | | Slab-lined | | | <u>All</u> |
|-------------------------------------|------------|-------------|------------|------------|-------------|------------|
| | <u>Cir</u> | <u>Rect</u> | <u>Cir</u> | <u>Hex</u> | <u>Rect</u> | |
| | n | n | n | n | n | n |
| Liters by firepit type/time period: | | | | | | |
| 1 | 19 | 1 | 6 | | 2 | 28 |
| x | 61.05 | 188.90 | 121.29 | | 148.81 | 84.78 |
| s ₁ | 46.39 | | 56.08 | | 165.31 | 66.53 |
| cv | 76 | | 46 | | 111 | 78 |
| 2 | 9 | 1 | 14 | 3 | 2 | 29 |
| x | 44.25 | 60.16 | 89.03 | 69.07 | 72.96 | 73.18 |
| s ₂ | 24.16 | | 55.74 | 15.49 | 31.45 | 46.62 |
| cv | 55 | | 63 | 22 | 43 | 64 |
| 3 | 8 | | 8 | 2 | 4 | 23 |
| x | 46.22 | | 73.44 | 59.14 | 64.59 | 58.24 |
| s ₃ | 25.70 | | 63.41 | 27.63 | 7.31 | 42.44 |
| cv | 56 | | 86 | 47 | 11 | 73 |
| 4 | 3 | | 7 | | 3 | 8 |
| x | 18.78 | | 81.32 | | 50.15 | 46.18 |
| s ₄ | 22.52 | | 2.36 | | 18.10 | 30.34 |
| cv | 120 | | 3 | | 36 | 66 |
| All periods: | | | | | | |
| | 39 | 2 | 30 | 5 | 9 | |
| x | 50.88 | 124.48 | 91.04 | 75.60 | 62.93 | |
| sd | 37.93 | 90.96 | 56.23 | 23.85 | 25.45 | |
| cv | 75 | 73 | 62 | 32 | 40 | |

house to the surface room is not apparent in terms of similar construction or in space served per liter of firepit (Table 1.7).

The distinction between "kivas" and pithouses is quite marked in terms of types and numbers of features, but possibly not so obvious in the evolution of function. A complete shift from secular activities is not as clear in the structural classification of "kiva" versus "pithouse". A marked trend toward size standardization is apparent in pit structures through time (Table 1.5). Pit structures are generally larger in the intermediate period, but with the removal of domestic features to the surface rooms, pit structures become significantly smaller, coeval with the change in site arrangement to diversified and specialized components. The "kiva" follows suit, and may represent no more than the extreme in a small, deep, uncluttered, and specialized "shelter" possibly (most often) used in winter and inclement weather. In the "kiva," the central firepit was slightly, but insignificantly smaller than that of the earlier pithouse firepit. The size of the accompanying floor space has decreased after the disappearance of the great variety of living features. Although kivas may become the locus of "ceremonial activity" and integrated, supra-household activities (e.g., of lineage or clan units), their architectural evolution is also within the continuum of systemic alteration to site functional-components as much as any rise in the significance of supra-household activities (cf. Gillespie 1976).

The differentiation of sites, beginning in Pueblo I, into specialized but integrated components may, in part, be related to the amalgamation of population suggested for the period. If site frequency is at all representative of population, then the 2.4:1 site ratio (Hayes et al. 1981: 24-26) between the Pueblo I and Basketmaker periods suggests the population had markedly increased, with all the attendant pressures on resources and social stability. It is possible that such growth was not all indigenous; therefore, marked differences in details of site construction, such as those at 29SJ 724, might be expected during this period. Thus, if land was at a premium, some form of site "packing" within the framework of traditional architecture might be expected. Further adjustments would also be expected. The pragmatics of integrating the facilities for more than one family under one roof may have been sufficient to promote alternative architectural styles; i.e., increase the importance of more easily prepared and managed surface architecture thereby saving the expense of subsurface constructions. On the average, pit structures are large in the Pueblo I period and probably approach the limits of reasonable size considering available materials, construction effort, and time, and the practicality of continued multi-functional use in a single pithouse attributed to the traditional, single family, Basketmaker structure.

SUMMARY

These introductory remarks are offered as an overview of the small sites excavated in Chaco Canyon during the 1970s. One impression from

studying such sites is that, although much of the development is similar to that found throughout the Colorado Plateau, the Anasazi expression encountered at Chaco may have much to do with the physiography of the San Juan Basin and Chaco's unique circumstances therein (Judge et al. 1981; Love 1980; Vivian 1970).

Recent excavations have uncovered a series of sites spanning the continuum of Anasazi occupation in Chaco Canyon. Both single and multi-component sites have been explored providing different insights to change in Chaco's prehistory. Through the insular vehicle of the site report much of the impetus for change appears localized and this overview has not discredited that presumption. This neither denies the Mesoamerican presence in Chaco nor confirms upon it the pivotal import rendered by others (see Kelley and Kelley 1975). Architectural changes in Chaco might be argued to be the result of changes in social structure, possibly related to population growth. These changes are similar to those elsewhere in the Anasazi area, which features the development of surface architecture complemented by functional changes in pit structure construction.

The regular distribution of features and the repetitive, patterned nature of site construction are recurrent themes throughout the site reports. Firepits and their relation to floor area have been used tentatively to suggest that Chaco's small sites saw increased diversification of features and space through time. It has also been tentatively argued that this diversification may have been a partial pragmatic response to changes in social structure from single to multi-family units (Table 1.1). Thus, it might be seen that facilities could be more easily integrated and used though separated into discrete task areas; however, the pit structure (not the room) apparently remains the nucleus of small site architecture.

Such change may, ultimately, be related to the increased importance of agriculture. Obviously full development of that subject is inappropriate here, but various feedback models (Flannery 1968; Geertz 1963; Glassow 1972) might be invoked to study such things as the destruction of gathering habitats, rescheduling of subsistence efforts, new acquisitions, modification of the "seasonal-round," and reorganization of political boundaries to account for change in settlement patterns in Chaco. Small site growth and change might be seen as but part of the patterned, systematic, functioning of prehistoric subsistence practices. That the adaptive expression in Chaco may have assumed a hierarchical format with a communal Great House as a cooperative outgrowth of the surrounding small communities is but one of several possible scenarios.

Chapter Two

The Sites

SITE 29SJ 423

Site 29SJ 423 was one of approximately 20 Basketmaker III sites situated on the top of West Mesa around the Bonito phase town of Peñasco Blanco. This cluster of mesa top Basketmaker sites complimented a similar group at the east end of the canyon around Shabik'eshchee Village (Roberts 1929). Mesa top Basketmaker sites, largely absent between these two clusters, abound along the Chaco bottomlands. Site 29SJ 423 was situated on the high point (1944 m) about 450 m south of Peñasco Blanco. The excavation and testing of three "pithouses," three cists, a Basketmaker Great Kiva, and a Pueblo III shrine were undertaken by Tom Windes (1975a) (Figure 1.8).

Excavation and testing soon revealed that minimal information would be forthcoming for the amount of labor expended to both reach and dig this relatively remote site. Fill generally consisted of windblown sand and scattered sheet trash often no greater than 5-10 cm over bedrock at the crest of the site but drifting deeper on the unexplored, leeward eastern slope.

All structures had been excavated into soft, eroding sandstone bedrock. The effort necessary to dig into the sandstone may have affected the investment in in-house floor pits and partially accounted for the large number of surface cists. Figure 1.8 reveals at least 40 "cists" and seven probable pit structures an excessive number of cists considering the 2.7:1 ratio noted for Shabik'eshchee. Windes has suggested that Basketmaker sites (29SJ 424 and 29SJ 425) on the lower, leeward benches may be domiciliary areas of a larger site of which 29SJ 423 is but a part.

The recognition of a Pueblo III shrine on the crest of 29SJ 423 led to the eventual discovery and description of a possible Anasazi visual communication system in Chaco Canyon (Hayes and Windes 1974). A crescentic wall of compound masonry (A.D. 1000s) was situated on the high point of the site and contained a stone cairn within the interior curve of its easterly oriented arc. Associated and within this cairn were many pieces of tur-

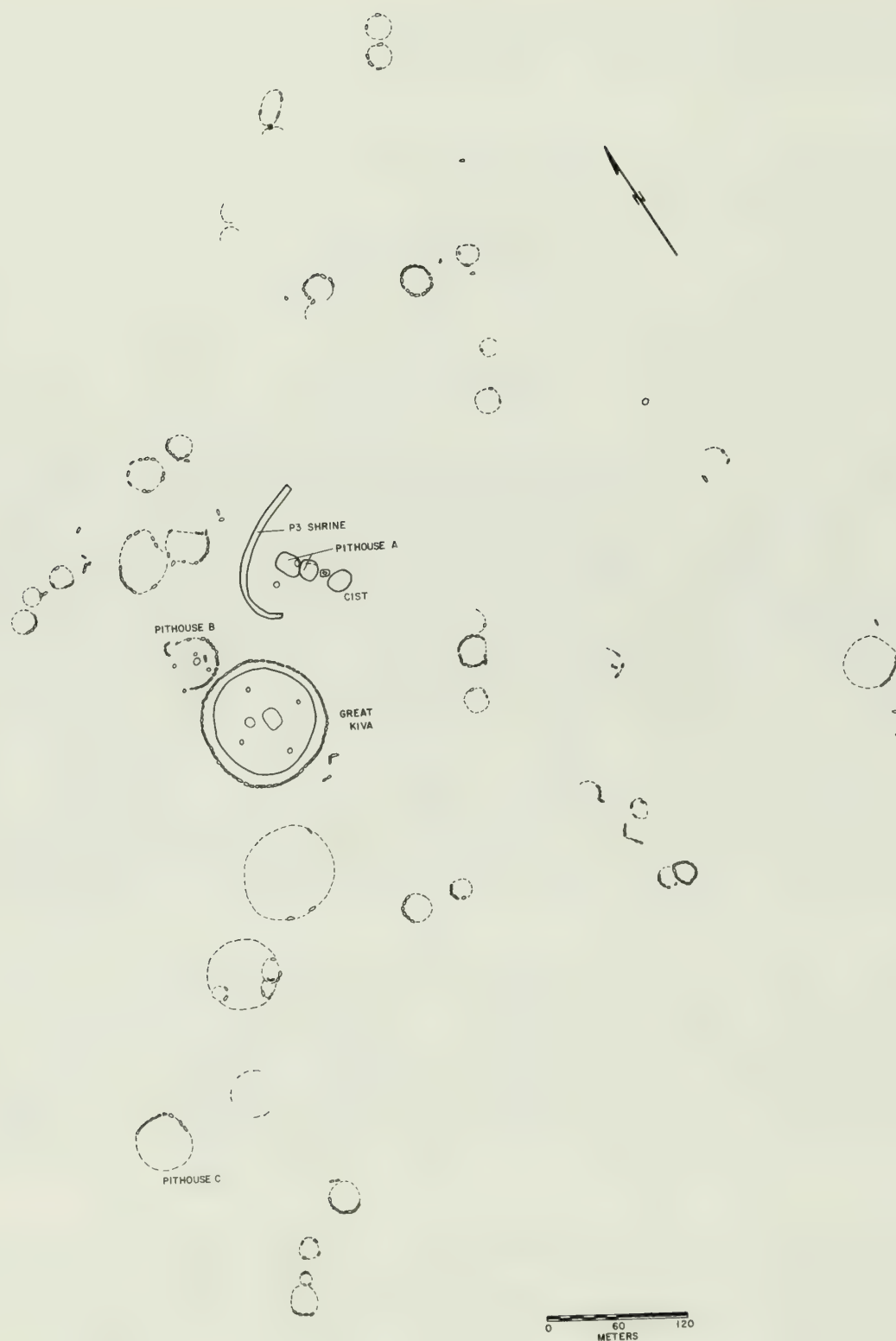


Figure 1.8. Site 29SJ 423 (after Windes 1975a).

quoise (beads), a stone bowl, and nearby, a miniature Chuskan bowl of Nava or Toadlena Black-on-white.

In the center of the site, south and west of the shrine, was the Great Kiva. Evidence of three superimposed Great Kivas, one over the other, was noted; all had been destroyed by fire. Approximately 40 years may account for the construction of the three Great Kivas: Great Kiva 1 between A.D. 520 and 540, number 2 between A.D. 540 and 550, and number 3 after A.D. 557. The earliest and largest Great Kiva was similar to those found in the Mogollon area in exhibiting peripheral roof post supports. Brownwares were associated with this structure. Trash deposits and construction of walls and a new roof support system suggest a hiatus between the first Great Kiva and the construction of the second. Although some new ground was broken for the second Great Kiva, extensive remodeling of the bench continued to reduce the floor space. With the second Great Kiva a centralized four-post roof support plan was adopted and maintained during the structure's remaining use. The middle structure exhibited a haphazard arrangement of secondary support posts on the main floor, while the final episode of use saw these lateral posts shifted to the bench. Using evidence of structural deposits and engineering data pertaining to timber stresses from reconstructed roof loads, Windes has argued the third Great Kiva was, at least partially, not roofed.

Three "cists" were also located within the eastern arc of the shrine wall. These may have originally served as storage pits for a nearby (unlocated) pithouse, but later alteration apparently converted the western two into a small pitroom with firepit and an antechamber. Pithouse B, although larger, seems to fall into the same class of shallow pithouse as the converted cists as it too has a central firepit but no definitive post holes or other features. The dispersed nature of pithouse locations, the partial overlay of Great Kiva 3, and some tentative dendrodates have led Windes to suggest Pithouse B predates even the first Great Kiva and may be one of the earliest structures on the site (Table 1.8).

Two apparent baking pits, Features 1 and 2, were also excavated. Feature 1, near the west side of Pithouse B, and Feature 2, near the three "cists," fall into the shape and size range of cooking features considered to be baking pits as opposed to smaller hearths of assumed daily use. The fill of Feature 1 was ubiquitous sheet trash.

The testing of Pithouse C, at the periphery of the site and south of the three Great Kivas, again revealed the shallow fill and construction into eroding bedrock found in the other excavated structures. Following this test, further excavation at 29SJ 423 was discontinued.

SITE 29SJ 299

Site 29SJ 299 was excavated to investigate structures of the Basket-maker III and Pueblo I periods (Table 1.9 and Figure 1.9). The site is

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Table 1.8. Site 29SJ 423 dimensions and dates.

| | <u>Diameter</u> | <u>N-S</u> | <u>E-W</u> | <u>Floor m²</u> |
|--------------|-----------------|------------|------------|--------------------------------|
| Great Kiva 1 | | 8.8 | 10.2 | 74.0 |
| 2 | | 9.0 | 9.3 | 61.0 |
| 3 | | 9.0 | 9.1 | 58.0 |
| Pithouse B | | 3.6 | 4.0 | 10.8 |
| Pithouse C | ca 4.7 | | | 17.3 |
| "Cist" A | | 2.5 | 2.1 | 4.7 |
| "Cist" B | | 1.4 | 1.9 | 2.7 |
| "Cist" C | | 2.6 | 2.9 | 6.5 |
| baking pit 1 | | 1.4 | 1.3 | |
| baking pit 2 | | .96 | .73 | 1.1 (x) |
| general site | | 114.0 | 74.0 | 8436.0 |

Dendrochronology Dates:

| | | | | | |
|-----|----|--------------------------|--------|------|--------------|
| CNM | 21 | Great Kiva, floor | Pinyon | A.D. | 391np-510vv |
| CNM | 24 | " " Lv 3 | " | | 424p-535v |
| CNM | 28 | " " floor | " | | 473p-550v |
| CNM | 30 | " " Lv 3 | " | | 340p-523vv |
| CNM | 31 | " " floor | " | | 480p-580r |
| CNM | 41 | " " south post | " | | 347p-554vv |
| CNM | 43 | " " west post | " | | 289np-557r |
| CNM | 44 | " " north post | " | | 297+np-435vv |
| CNM | 45 | " " east post | " | | 426fp-519vv |
| CNM | 46 | Pithouse B, Lv 1 | " | | 450fp-530vv |
| CNM | 55 | " " floor feat. 2 | " | | 307fp-367vv |
| CNM | 57 | " " " " " | " | | 277fp-355vv |
| CNM | 61 | Great Kiva 1, posthole A | " | | 365fp-516vv |
| CNM | 62 | " " 2?, lower bench fill | " | | 354fp-449vv |
| CNM | 67 | " " 1, posthole E | " | | 326fp-515vv |
| CNM | 68 | " " 1, posthole F | " | | 325+p-480vv |
| CNM | 70 | " " ext. trash on bdrx. | " | | 113np-221vv |
| CNM | 75 | " " 3, under outer wall | " | | 458fp-490vv |

Table 1.9. Site 29SJ 299 dimensions.

| | Diameters in | | | | Bench width | Depth | Floor area m ² | | |
|------------------------|-------------------------------|-----------------------|---------------------------|---------------------------|----------------|-----------|---------------------------|------------------|----------------------|
| | main chamber <u>N-S</u> | chamber <u>E-W</u> | antechamber <u>N-S</u> | antechamber <u>E-W</u> | | | main chamber | ante- chamber | behind wing walls |
| Pitthouse A w/bench | 4.71 | 4.69 | 3.15 | 2.56 | | 0.45-0.58 | 18.08 23.78 | 5.97 | 2.66 |
| Pitthouse C | 3.20 | 3.69 | 2.70 | 2.54 | | 0.94 | 8.53 | 5.14 | |
| Pitthouse D w/bench | 3.45 | 3.50 | 2.40 | 2.50 | | 0.75-0.82 | 12.13 19.64 | 5.07 7.00 | 3.43 |
| Pitthouse E | 4.50 | 6.00 | | | | 2.20 | 23.50 | | 2.20 |
| Kiva B | 3.66 | 3.59 | | | | 2.00 | 12.56 | | |
| Room 1 | 1.30 | 1.25 | | | | - | 1.03 | | |
| Room 2 | 1.40 | 1.50 | | | | 0.35 | 1.69 | | |
| Room 3 | 1.34 | 1.52 | | | | 0.20-0.30 | 1.50 | | |
| Room 4 | 0.14 | 1.30 | | | | 0.45 | 1.41 | | |
| Room 5 | 2.35 | 2.03 | | | | 0.58-0.65 | 3.77 | | |
| Room 6 | 1.93 | 1.74 | | | | 0.72-0.75 | 2.07 | | |
| Room 7 | 1.51 | .60-.68 | | | | 0.08-0.10 | 0.73 | | |
| Room 8 | 1.65 | 1.75 | | | | 0.40 | 2.12 | | |
| Room 9 | 2.12 | 1.17 | | | | 0.30-0.40 | 1.86 | | |
| Room 10 | 1.15 | 1.65 | | | | - | 1.45 | | |
| Room 12 | 2.20 | 1.11-1.26 | | | | 0.24 | 2.66 | | |
| Room 13 | 2.79 | 1.34 | | | | 0.09 | 3.70 | | |
| Room 14 | 2.65 | 1.18 | | | | 0.10-0.15 | 3.10 | | |
| Room 15 | 1.82 | .80-.95 | | | | 0.31 | 1.66 | | |
| baking pit 11 | 0.40 | 0.45 | | | | 0.44 | 0.98 | | |
| ramada | 24.00 | 10.00 | | | | 0.10 | 24.00 | | |
| general site - BM3 | 23.00 | 62.00 | | | | | 1426.00 | | |
| general site - P1 | 16.00 | 12.00 | | | | | 192.00 | | |



Figure 1.9. Site 29SJ 299, A.D. 500s-early 700s portion.

located at the base of a long ridge extending north from Fajada Butte to the Chaco bottomlands. Excavation of the Basketmaker component in 1973 was reported by Loose (1978) while excavations in 1974 by T. Windes, K. Masterson, and W. Gillespie concentrated on the Pueblo I occupation (Windes 1976a).

Loose uncovered three pithouses and attendant storage cists, an intrusive Pueblo II kiva, and a Mesa Verde period trash deposit on the north side of Pithouse A (probably another intrusive kiva). One of the Basketmaker pithouses, C, was an uncompleted structure without roof support molds, hearth, or finished bench and floor area that, later, had been used as a trash pit. The antechamber has been reused as an adobe mixing pit and wash from this area capped the trash deposits in the main chamber. Excavation of this structure provided evidence of some of the planning and procedures implemented in constructing a pithouse.

Pithouses A and D exhibited the large back-to-back D-shaped ante and main chambers, benches, pottery (Lino Gray and La Plata Black-on-white), floor features, and plan of Basketmaker structures. Cross-dating by dendrochronology and archaeomagnetism provided some of the most satisfactory results achieved from the Chaco Center excavations. Both structures were apparently built in the early A.D. 600s with Pithouse A lasting perhaps 20 years until about 635. Occupation of Pithouse D lasted longer, perhaps 70 years, until about 685 and may represent one instance of "normal" house-life. Both pithouses were burned; charred roofing material and artifacts were found on and directly above the floor. Alluvial and aeolian sandy soil capped these deposits.

Loose offers some tentative interpretations on the burning of both A and D. All of the floor artifacts of Pithouse A appeared to be in situ at abandonment and undisturbed by fallen roof beams and stringers. Artifacts in Pithouse D were unoxidized but mixed with burned roof beams and structural mortars. Because of these differences, Loose postulates Pithouse A burned unintentionally and inhabitants barely escaped. Deposits in Pithouse D suggest a salvage operation was first accomplished with intentional burning at abandonment; some reuse as a Basketmaker trash dump was indicated. In both structures antechambers were unburned and the construction materials apparently salvaged, as no remnants of wood remained in postholes or areas of peripheral wainscoting.

Although Loose does not discuss site demography, Windes believes that architectural evidence and the paucity of trash suggest construction and short-term occupation by a single nuclear family in Pithouse E of the Pueblo I component (detailed in Figure 1.10). In support of this conclusion, Windes notes the architectural similarity of rooms 13 and 14 and the positioning of the pithouse directly in front of them, suggesting that these were the first structures built. Intrasite population growth might be indicated by the slow architectural development of the roomblock. Rooms 12 and 15, constructed without slab foundations, were probably built later. The position of the postholes of the fronting ramada suggest an initial trapezoidal construction in front of rooms 13 and 14 with a later, smaller, rectangular group centering on Room 15. The lack of a fronting

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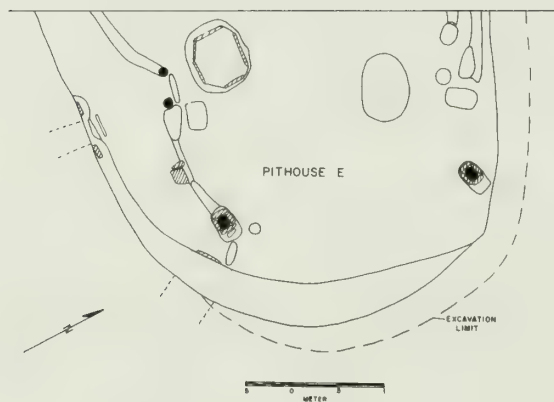
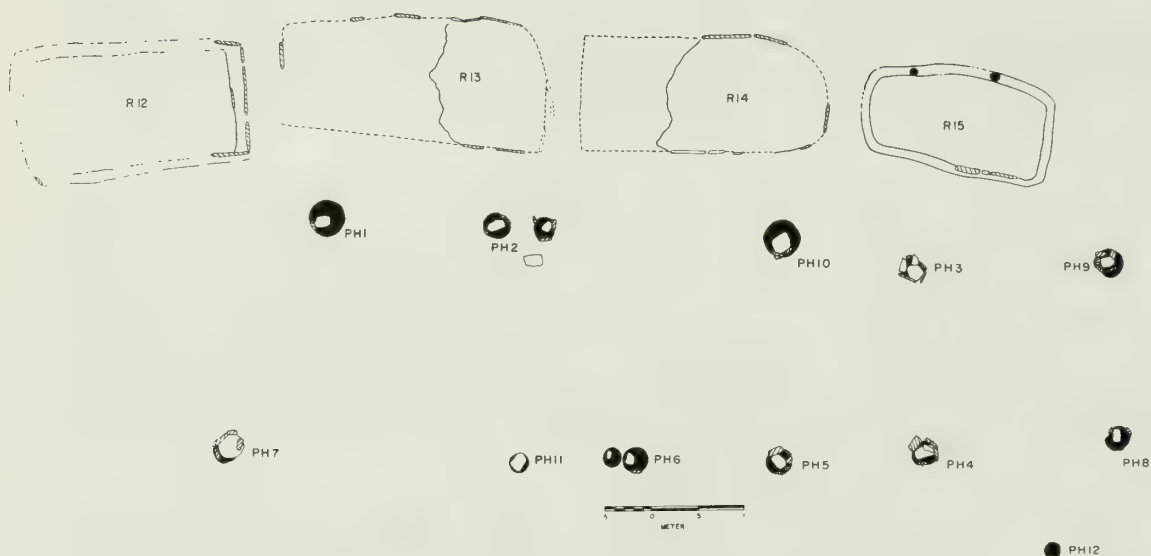


Figure 1.10. Site 29SJ 299, P-I component (after Windes 1976a).

ramada for Room 12, its nonalignment with the other rooms and position over ashy, discolored sand, and the use of foundation turtlebacks (see Vivian 1965:14, Figure 3) suggest it was constructed last.

Windes' contention that the Pueblo I component is an early transitional development between Basketmaker and later Pueblo I architecture (ca. A.D. 710-740) is not supported by his comparisons to 29SJ 724, as the two sites are apparently contemporary (ca. A.D. 800) (Table 1.16). Windes notes architectural distinctions between these two sites to support his argument that the Pueblo I component of 29SJ 299 was developed by a single nuclear family; therefore, the difference between the two sites may be related to population size rather than construction date.

The Pueblo I component rooms and ramada were overlain by aeolian ridge sands while Pithouse E was filled by mixed aeolian-alluvium deposits. A later, Pueblo II ramada found in the depression of Pithouse E indicated by hearths, postholes, and ceramics mid-way in the fill. This component of 29SJ 299 is situated on the southerly sloping ridge face while the Basketmaker pithouse and later kiva(s) occupied the crest of the ridge.

Kiva B, the most recent structure excavated, evidences the formalization of floor features, ventilator shaft construction, depth of floor, and presence of wall niches sufficient to suggest a Pueblo II kiva associated with one of the later, adjacent house mounds. About 30 cm of Pueblo II trash lay directly on the floor. Scattered secondary burials underneath massive sandstone debris capped by alluvium completed the stratigraphic sequence. The sequence and nature of deposits suggest construction materials were salvaged and the pit was only briefly used as a domestic trash receptacle. The debris, "burials" included, from apparent construction or remodeling seems to mark the end of Kiva B's utility.

The orientation, general shape, and interior structuring of features in 29SJ 299's pithouses would seem to reflect the temporal changes in architectural style noted by Truell (1975) for 29SJ 628 and by Hayes (Hayes et al. 1981) for the canyon's survey data (Table 1.10, Figures 1.9, 1.10). A progression of early to later trends apparent at 29SJ 299 might be summarized as follows:

- 1) Pithouse A exhibits interior slab-walled corner bins; D does not but has wall niches.
- 2) A progression in the alignment of the north-south antechamber to the main chamber can be seen from the ordering of pithouses A-C-D-E.
- 3) Flaring of walls toward the floor does not occur in Pithouse A, is evident in D, and is most extreme in E.
- 4) Lateral supports are evident on the benches of pithouses A and D, but are absent in E.

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Table 1.10. Site 29SJ 299 dates.

Dendrochronology dates:

| | | | |
|---------|-------------------|--------|---------------------------|
| CNM 87 | Pithouse A, floor | Pinyon | A.D. 337p-482vv |
| CNM 101 | " " " | " | 426fp-553vv |
| CNM 107 | " " " | " | 537p-598v |
| CNM 108 | " " " | " | 484p-611r |
| CNM 110 | " " " | " | 429 ⁺ p-544vv |
| CNM 112 | " " " | " | 311+p-569vv |
| CNM 119 | " " " | " | 456p-612r |
| CNM 120 | " " " | " | 466 ⁺ np-584vv |
| CNM 124 | " " " | " | 412p-553vv |
| CNM 125 | " " " | " | 449p-584v |
| CNM 128 | " " " | " | 553p-608+r |
| CNM 129 | " " " | " | 534p-607r |
| CNM 141 | Pithouse D, floor | " | 534p-607r |
| CNM 142 | " " " | " | 501 ⁺ p-593vv |
| CNM 151 | " " " | " | 532p-600r |

Archaeomagnetic dates:

| | | |
|----------|-----------------------------|--------|
| ESO 858 | Pithouse A firepit 1 | 607+29 |
| ESO 859 | Pithouse A bench | 635+18 |
| ESO 883 | Pithouse D burned wall | 685+39 |
| ESO 885 | Kiva B firepit 1 | na |
| ESO 1089 | Pithouse E fl 1 heating pit | 800+23 |

- 5) A general trend toward rounder, deeper pit structures by Pithouse E. Differential erosion may account for discrepancies between A and D, although D (and incomplete C) seem to be deeper.
- 6) Storage "rooms," located northwest of the pit structures, become more formalized through time with increases in size and standardization; floors are basin-shaped and plastered as opposed to the earlier deeper, unlined cists. These rooms apparently compensate for the lack of wall niches or bins in Pithouse E. A light, roofed ramada occurs with the latest component.

Archaeomagnetic and dendrochronological dating have suggested that these are not all temporal trends at 29SJ 299, but co-occurring construction methods in at least Basketmaker pithouses A and D. Truell's arguments for rapid but patterned sequential development of architectural styles are also supported by archeomagnetic dating, which suggests construction at 10-year intervals at 29SJ 628, a sequence beginning 100 years after the abandonment of 29SJ 299's Pithouse D. This would be fully 150 to 170 years after construction of Basketmaker pithouses at 29SJ 299. Except for a difference in wall niches, 29SJ 299's Pithouse E and 29SJ 628's Pithouse A are architecturally similar and apparently almost contemporary (compare dates on Tables 1.10 and 1.12). It is possible that the long tradition of single family dwellings in the earlier Basketmaker period which exhibits a variety in internal architecture (compare Pithouse C at 29SJ 628 with A and D at 29SJ 299), begins to undergo a rapid transition near the end of the 800s following a period of relative architectural stability in the early to mid-800s. Concomitant with this architectural change may be the coalition of at least two individual nuclear families in one pithouse. Excavations at 29SJ 299 have apparently tapped two ends of this spectrum--the earlier Basketmaker and a single family Pueblo I house--without the critical architectural sequence revealed at 29SJ 628.

SITE 29SJ 628

Site 29SJ 628 was one of the first sites to be excavated by the Chaco Center. Marcia Truell (1975) excavated and reported on the six pithouses and six cists that were dug (Table 1.11 and Figure 1.11). The site was located by survey crews on the basis of a few upright cist slabs and sherd scatter; no pit structure depressions were visible. Although dug as part of the Basketmaker investigations, Truell concluded that construction indicated a continuum of development into a 700s Pueblo I style.

A prehistoric drainage at the south end of the site probably accounts for the varying depth of the capping alluvium, the first layer of fill encountered in all pithouses, across the site. The southernmost structure, Pithouse C, has the deepest alluvial layer while the northernmost, G and D, the most shallow. Cists, being upslope, had the highest relief and

Table 1.11. Site 29SJ 628 dimensions.

| dia. | Diameter in | | | | Bench width | Depth | Floor area m ² | | |
|--------------|------------------------|----------------|--------------------|----------------|----------------|-------|---------------------------|------------------|----------------------|
| | main chamber N-S | chamber E-W | antechamber N-S | chamber E-W | | | main chamber | ante- chamber | behind wing walls |
| Pithouse A | 3.90 | 4.25 | | | | 1.05 | 13.06 | | 1.69 |
| Pithouse C | 6.10 | 8.72 | 2.30 | 2.55 | 0.90 | 1.00 | 38.00 | 5.07 | 5.39 |
| Pithouse D | 4.90 | 6.30 | 3.37 | 3.00 | 1-0.9 | 1.65 | 15.40 | 8.92 | 3.59 |
| Pithouse E | 4.35 | 5.95 | | | 0.63 | 1.35 | 14.25 | | 2.13 |
| Pithouse F | 3.20+ | 3.30 | | | | 0.75 | 8.57 | | |
| Pithouse G | 3.85 | 3.60 | | | | 1.50 | 12.44 | | 2.19 |
| Cist 1 | 2.38 | 1.57 | | | | 0.56 | 3.29-3.52 | | |
| Cist 2 | 2.60 | 2.00 | | | | 0.50 | 4.15 | | |
| Cist 3 | 1.72 | 1.60 | | | | 0.26 | 2.17 | | |
| Cist 4 | 1.60 | 1.25 | | | | 0.10 | 1.57 | | |
| Cist 5 | 2.70 | 1.92 | | | | 0.35 | 3.88 | | |
| Cist 6 | 1.05 | | | | | 0.08 | 0.85 | | |
| general site | | 25.60 | 18.30 | | | | 469.00 | | |

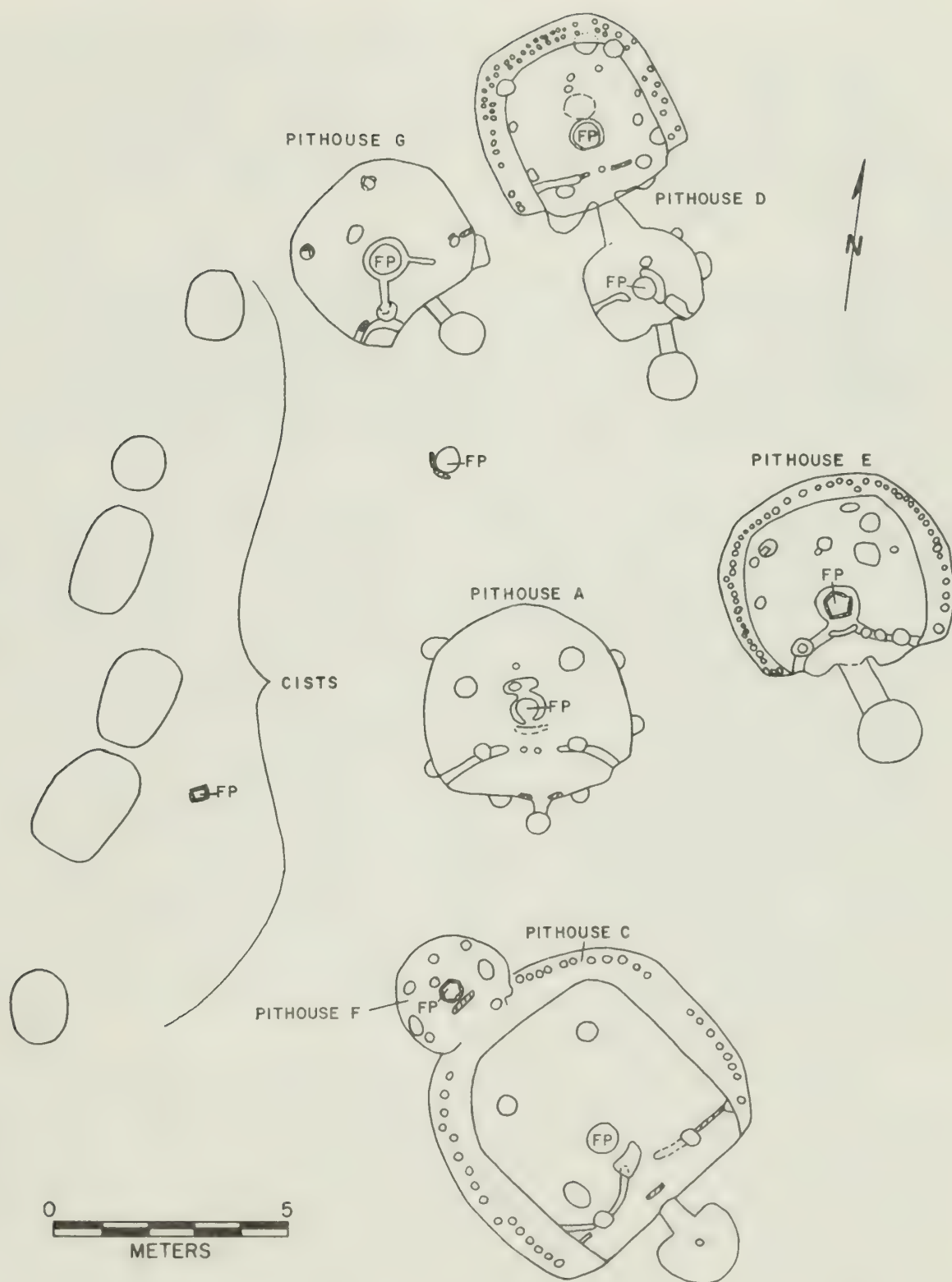


Figure 1.11. Site 29SJ 628 (after Truell 1975).

least overburden of all structures. The bulk of the deposit in all other pithouses, except alluvially filled G, was domestic trash interspersed by occasional episodes of intentional fill--probably backdirt from nearby excavation and construction of aboriginal houses. Pithouse A had two episodes of trash deposition separated by alluvium. All structures exhibited a clean, yellow or orange sand over the floor which Truell suggests may have been occupationally related as opposed to a post-occupational deposit.

Truell describes a chronological ordering of structures from earliest to most recent: C, D-G, E, A, and then probably F. Although archaeomagnetic dates on Table 1.12 generally support this sequence, Truell's strongest arguments are based on comparative architectural sequencing between the structures. Truell believes the architecture of Pithouse D is older than that of G, however, reconstructed, matched ceramics in the fill between the two houses, allowed her to suggest G was abandoned prior to D.

According to Truell, the habitation sequence between structures C, D, and E represented short, consecutive construction sequences in which distinct trends were discernible. First, floor area and shape were altered from the large D-shaped plan in Pithouse C to a smaller, more oval plan such as Pithouse E. Antechambers were reduced to vents and in Pithouse C the large antechamber was physically remodeled into a vent. This overall reduction in floor area was apparently partially compensated for by the construction of wall niches. The walls of smaller, later structures flare toward the floor with main support posts tending to be incorporated into the bench. The southern wall changes from a flat front to a noticeable protrusion of the ventilator opening into the main chamber. Truell suggests that Pithouse F was the last structure built due to its absence of a ventilator wall, as well as its small size and placement over part of Pithouse C which was apparently completely filled at the time of Pithouse F's construction. Pithouse A seems to represent a greater departure from the conservative sequence outlined for pithouses C through E. It evidences the most advanced degree of reduced floor area, oval shape, small squarish vent, wall niches, absence of bench, and the vertically conical house shape tentatively implied by the sequence of development seen in the earlier structures.

Features, with minor exceptions, were consistently maintained through time. Firepits were all constructed slightly south of center in the main chambers, all had a basal layer of sand, contained primary charcoal and ash, and were slab-lined. Those in antechambers were made of adobe. Small heating pits within main chambers exhibited rim oxidation and burned sand but no charcoal. These small pits (65-80 cm long, 40-55 cm wide, 14-16 cm deep), oval, unlined, and flush with the floor, were apparently randomly placed with no tendency to put them "out of the way" along the periphery of the chamber. Main support posts did not change in size through time. All wall niches were approximately the same size and all except those in Pithouse D (the earliest with niches) were plastered. At 29SJ 628, when antechambers were discontinued, niches were built along the

Table 1.12. Site 29SJ 628 dates.

Dendrochronology dates:

| | | | |
|---------|------------------|----------|-----------|
| CNM 177 | Pithouse D, Lv 2 | PP* A.D. | 597-674vv |
|---------|------------------|----------|-----------|

Archaeomagnetic dates:

| | | |
|----------|----------------------|---------------|
| ESO 860 | Pithouse A firepit 1 | 830 \pm 31 |
| ESO 861 | Pithouse C firepit 1 | 760 \pm 42 |
| ESO 879 | Pithouse D firepit 1 | 770 \pm 33 |
| ESO 880 | Pithouse E firepit 1 | 780 \pm 28 |
| ESO 1405 | Pithouse G firepit 1 | 1000 \pm 40 |

* Ponderosa Pine

southern wall; when the bench vanished, niches appeared on all walls. The north-south axis along the ventilator-main house alignment gradually changed through time from 60° east of south in Pithouse C to a true north-south alignment in Pithouse A.

Truell believed the surface cists, because of placement and orientation, were all originally constructed with Pithouse C. All had upright slabs in varying numbers and positions along the rim and all were lined and floored with gray, shale-derived clay. Only one, Cist 3, showed evidence of reuse as a clay mixing basin while multiple floors and floor pits in other cists suggested continued use as storage areas. The associated ramada surface and activity area, if present, was obscured and seriously damaged by overburden deposition which accounted for the recovery of only a few, scattered, extra-mural firepits.

The excavation of 29SJ 628 is, undoubtedly, the most extensive undertaken by the Chaco Center of a Basketmaker habitation site. In all probability the full extent of the site was not exposed because all structures were filled with roughly contemporaneous trash, suggesting that any pithouse(s) last occupied remain unlocated. Similarly, pit structures contemporaneous with A are often associated with more extensive surface architecture than was apparent in the excavation of 29SJ 628.

SITE 29SJ 1659

The extensive mesa top Basketmaker settlement of Shabik'eshchee Village was excavated and reported by F.H.H. Roberts, Jr., near the end of the 1920s (Roberts 1929). A few data, comparable to those presented in this report, have been abstracted from Roberts' text and compiled in Table 1.13. This summary is not concerned with replicating or even summarizing Roberts' classic work, but with briefly covering the site's reexamination by the Chaco Center. Alden C. Hayes and J. Thrift excavated pithouses or portions thereof at Shabik'eshchee in 1973 for the express purpose of collecting archaeomagnetic and dendrochronology dates (Hayes 1975).

Bannister's (1965:192) published dates from Shabik'eshchee were late (eighth century) for the Basketmaker sequence; after Hayes' excavations were completed a reevaluation of these late dates was published (Robinson et al. 1974:39). This reevaluation placed the occupation of Shabik'eshchee Village in the 500s. Excavations in Pithouse Y by the Chaco Center produced similar early dates (Table 1.14) making the architectural development of the site comparable to that found throughout the contemporaneous Anasazi world.

Following the reclearing of pithouses A, F-1, and H, their firepits were determined to be unsuitable for archaeomagnetic sampling. Pithouse Y, near Roberts "Protokiva House" and House X northwest of the Great Kiva, was then excavated (Figure 1.12). The structure was filled with light sheet trash and compacted aeolean sand. The pithouse exhibited the

Table 1.13. Site 29SJ 1659 dimensions.

| | <u>dia.</u> | Diameters in | | | | <u>Bench width</u> | <u>Depth</u> | Floor area m ² | | |
|----------------------------|----------------|---------------------|------------------------|----------------------------|------------|------------------------|--------------|---------------------------|--------------------------|------------------------------|
| | | <u>main N-S</u> | <u>chamber E-W</u> | <u>antechamber N-S</u> | <u>E-W</u> | | | <u>main chamber</u> | <u>ante- chamber</u> | <u>behind wing walls</u> |
| Pithouse A | | 4.42 | 4.72 | 3.35 | 2.44 | | 0.76 | 19.64 | 6.47 | |
| Pithouse B | | 5.49 | 4.72 | | | | 0.61 | 23.13 | | |
| Pithouse C w/bench | 2.74 | | | | | | 0.91 | 6.37 9.38 | | 0.82 |
| Pithouse D | | 4.42 | 3.66 | | | | 0.91 | 15.30 | | 3.26 |
| Pithouse E | 4.27 | | | | | | - | 13.79 | | 2.39 |
| Pithouse F | | 3.81 | 3.35 | 0.91 | 0.61 | | 0.91 | 10.11 | 0.89 | 1.52 |
| Pithouse F-1 | | 6.40 | 5.49 | 2.60 | 1.83 | | | 31.36 | 3.45 | 6.42 |
| Pithouse G | | 3.66 | 3.35 | 2.59 | 2.13 | | 0.91 | 10.21 | 4.81 | 1.92 |
| Pithouse H | | 3.51 | 3.81 | | | | 0.76 | 11.17 | | 2.09 |
| Pithouse I | | 2.90 | 3.00 | | | | 0.46 | 7.06 | | |
| Pithouse J | | 4.00 | 3.20 | 1.52 | 1.68 | | 0.61 | 10.34 | 2.17 | |
| Pithouse K | | 4.00 | 4.90 | 2.29 | 2.13 | | 0.76 | 14.60 | 3.80 | |
| Pithouse L | | 3.51 | 4.00 | | | | 0.86 | 11.29 | | 2.17 |
| Pithouse M | | 5.80 | 4.90 | | | | | 22.17 | | 4.30 |
| Pithouse N | | 3.81 | 4.42 | | | | 0.61 | 15.21 | | 3.32 |
| Pithouse O | 3.66 | | | | | | 0.76 | 10.27 | | |
| Pithouse P | | 2.84 | 2.74 | | | | 0.81 | 6.45 | | 1.75 |
| Pithouse Q | | 4.27 | 4.37 | | | | 0.74 | 15.80 | | 2.58 |
| Pithouse X | | 5.58 | 5.33 | | | | 0.61 | 23.34 | | |
| Pithouse Y | | 4.75 | 4.80 | 2.20 | 1.96 | | 1.30 | 20.91 | 4.12 | 2.73 |
| Protokiva House w/bench | 4.57 5.49 | | | | | | 0.61 | 18.69 23.66 | | |
| Great Kiva w/bench | 10.97 12.19 | | | | | | | 87.58 111.43 | | |
| Cist 12 | | 1.47 | 1.17 | | | | 0.46 | 1.57 | | |
| Cist 13 | | 2.29 | 0.91 | | | | 0.46 | 2.11 | | |
| Cist 14 | | 1.83 | 0.86 | | | | 0.51 | 1.25 | | |
| Cist 15 | | 3.35 | 2.43 | | | | 0.30 | 6.10 | | |
| Court | | 5.79 | 2.74 | | | | | 15.00 | | |
| North Refuse Mound | | | | | | | | 127.76 | | |
| South Refuse Mound | | | | | | | | 96.10 | | |
| general site | | 50.00 | 60.00 | | | | | 3000.00 | | |

Table 1.14. Site 29SJ 1659 dates.

Dendrochronology dates:

| | | | |
|---------|-----------------------|--------|-----------------|
| GP 2477 | Great Kiva | Pinyon | A.D. 243p-327vv |
| GP 2465 | " " | " | 236p-352vv |
| GP 2470 | " " | " | 349fp-581++vv |
| GP 2472 | " " | ? | 236-428++vv |
| JPB 159 | " " | Pinyon | 137fp-557++vv |
| SHV 11 | Pithouse Y, firepit 1 | " | 1-242vv |
| SHV 9 | " " " " | " | 115-275vv |
| SHV 8 | " " " " | " | 421fp-537v |

Archaeomagnetic dates:

| | | |
|----------|----------------------|--------|
| ESO 882 | Pithouse Y firepit 1 | 680+19 |
| ESO 1459 | Great Kiva bench | na |



Figure 1.12. Shabik'eshchee Village (29SJ 1659) with approximate position of Pithouse Y (after Roberts 1929).

adjacent D-shaped floor plan of antechamber and main chamber. Two intrusive cists were located in the antechamber. The antechamber and passageway had been filled and remodeled into a ventilator system similar to the situation described for Pithouse C at 29SJ 628 (Truell 1975). The floor, slightly dished, was plastered with clay. The central, round, clay-lined firepit had two low adobe wings flaring toward the east and west. The posts of the four-cornered roof support plan were centrally located on the floor. A large balk was left in the northwest portion of the pithouse.

Test trenches revealed another pithouse (Z) in the area, but the structure's excavation was not undertaken (Figure 1.13).

SITE 29SJ 721

Located a little east from the mouth of Werito's Rincon, 29SJ 721 was excavated and reported on by Windes (1975b). Two pithouses, six cists, a Pueblo I room, and a Pueblo III kiva were excavated (Figure 1.14). Dimensions of site features and associated dated material may be found on Table 1.15.

The site was situated on a small clay knoll near the talus of South Mesa. The lack of extensive trash, evidence of remodeling, and the small, temporally fragmented character of the occupation have prompted Windes to suggest that the knoll was occupied only sporadically by single nuclear families for brief periods of time. It was suggested that the benches of South Mesa cut off much of the winter sun thereby making other, nearby knolls more favorable for development as residential sites.

The Pueblo III kiva was unfinished, exhibiting neither floor features and roof support molds nor wall and floor plasters. Windes has posited the ritual abandonment of the kiva prior to its completion, based on the positioning of smudged ware sherds in the cardinal directions on the kiva floor. Also postulated was the building of the kiva as a "spill-over" from a small house, 29SJ 722, crowded onto a small knoll-top about 100 m north. This site apparently lacked room for expansion on the knoll proper.

Pithouse C, on the top of 29SJ 721's knoll, exhibits the short entryway (because of topography) and circular firepit with raised lateral wings common to small, early Basketmaker and Pueblo I pithouses without antechambers. However, Pithouse A exhibits the more rectangular house form and hexagonal shaped firepit common to Pueblo I and later periods. Based on these architectural differences Windes concluded that Pithouse C slightly predated A, but that both structures were built and used briefly during the A.D. 700s, before the widespread use of neckbanded and slipped decorated pottery.

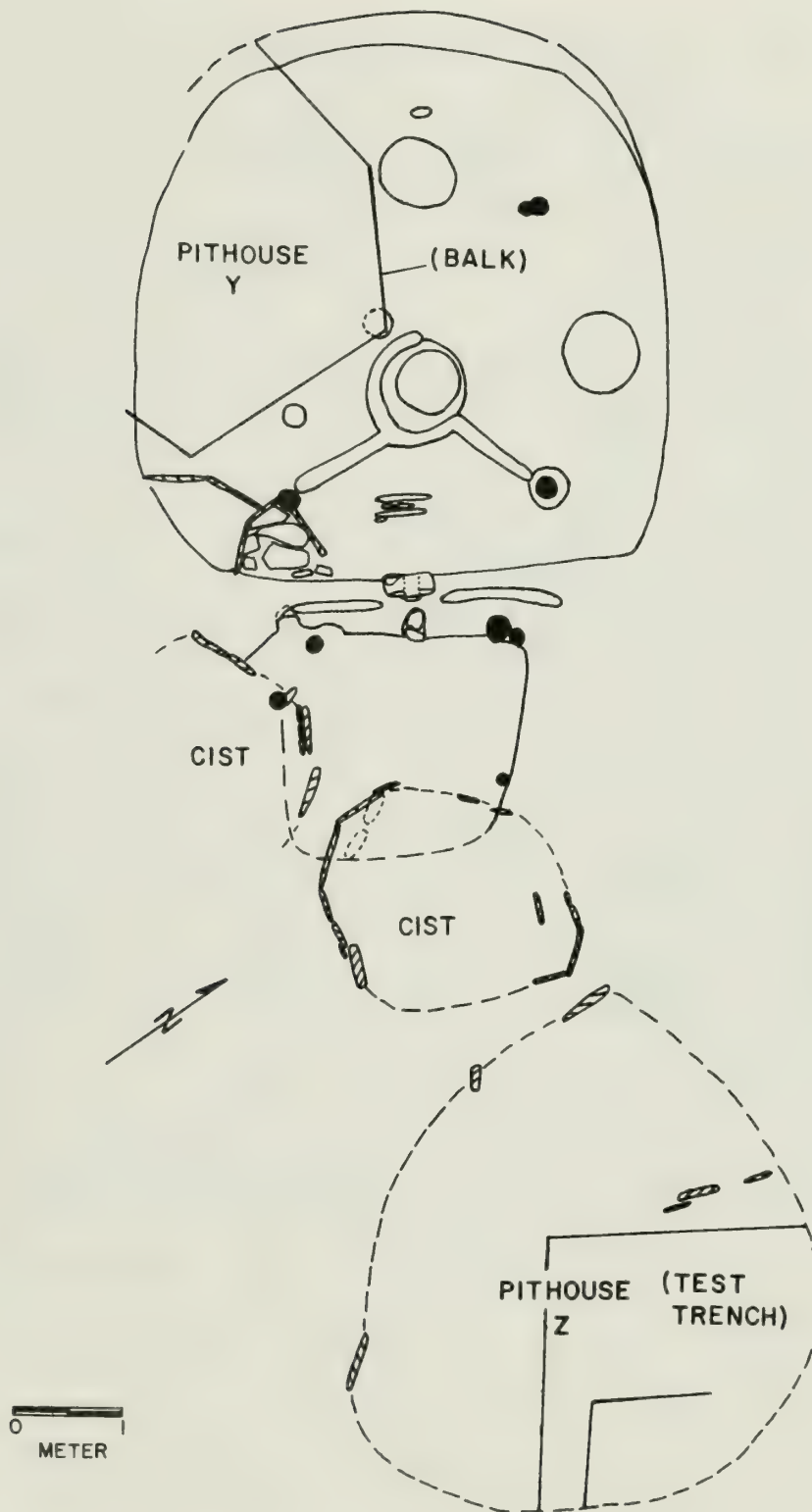


Figure 1.13. Pithouses Y and Z, Shabik'eshchee Village.

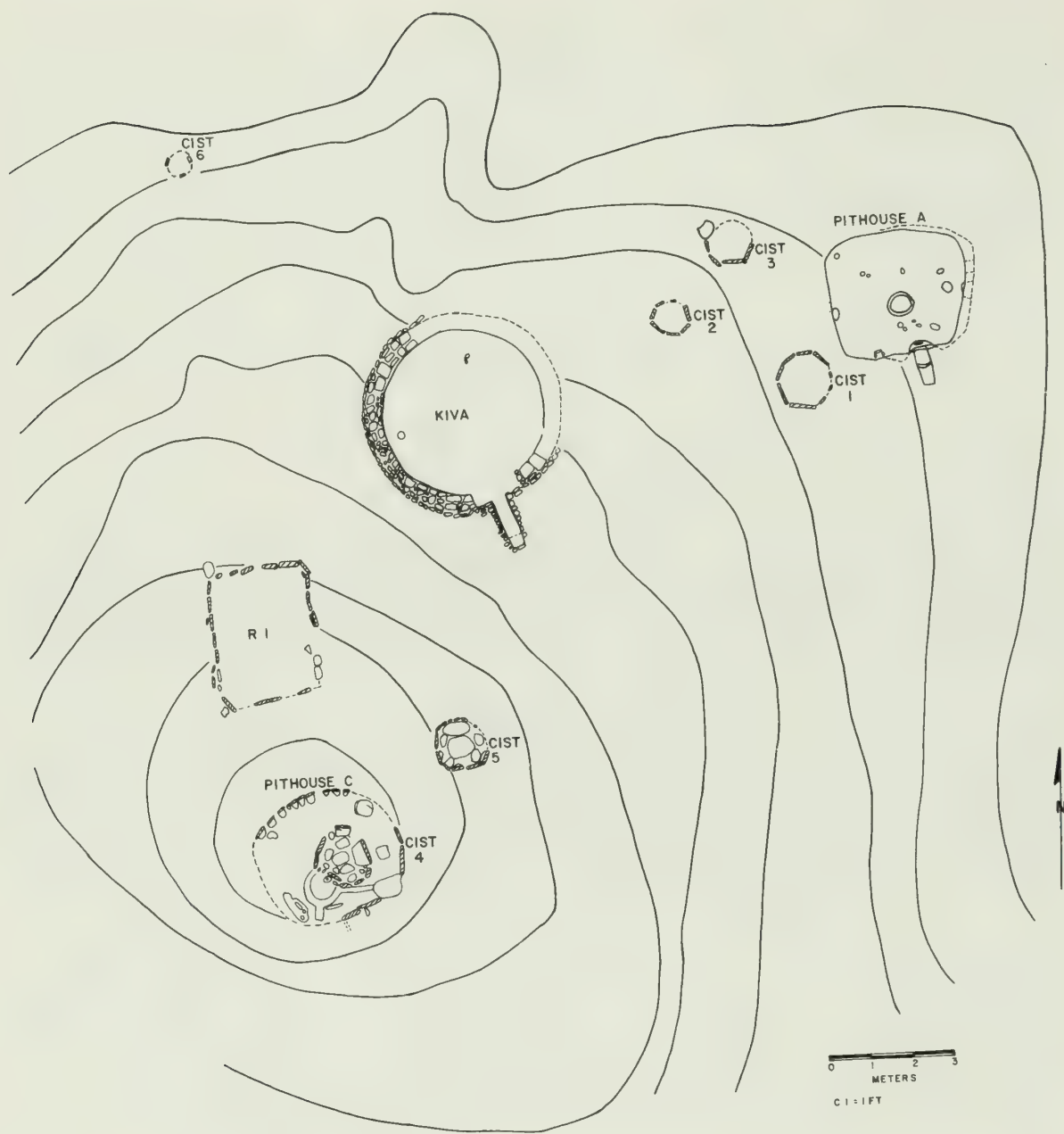


Figure 1.14. Site 29SJ 721 (A.D. 600-late 700s?) (after Windes 1975b).

Table 1.15. Site 29SJ 721 dimensions and dates.

| | <u>Width bench</u> | <u>Floor dia.</u> | <u>N-S</u> | <u>E-W</u> | <u>m²</u> |
|--------------|------------------------|-----------------------|------------|------------|----------------------|
| Kiva | 0.5-0.6 | 3.80 | | | 3.1 |
| Room 1 | | | 3.30 | 2.55 | 6.0 |
| Pithouse A | | | 2.90 | 3.30 | 9.2 |
| Pithouse C | | | 2.90 | 3.45 | 8.2 |
| baking pits | | | | | 0.9 (\bar{x}) |
| storage pits | | | | | 0.6 (\bar{x}) |
| general site | | | 18.0 | 10.0 | 180.0 |

Dendrochronology dates:

| | | | | |
|---------|--------|--------|------|---------------|
| CNM 178 | Cist 5 | Pinyon | A.D. | na |
| CNM 179 | Cist 4 | " | | 362p-504vv |
| CNM 180 | " " | " | | 363-548vv |
| CNM 181 | " " | " | | na |
| CNM 182 | " " | " | | 276fp-427vv |
| CNM 183 | " " | " | | 459-543vv |
| CNM 184 | " " | " | | 388p-551vv |
| CNM 185 | " " | " | | 434fp-561vv |
| CNM 186 | " " | " | | 328fp-462vv |
| CNM 187 | " " | " | | 493fp-538vv |
| CNM 188 | " " | " | | 492fp-621++vv |

Archaeomagnetic Dates:

| | | |
|----------|--------------------|--------------|
| ESO 884 | Pithouse A firepit | 765 \pm 25 |
| ESO 1515 | Pithouse C firepit | na |

(\bar{x}) = n unspecified.

Room 1 was identified architecturally as Pueblo I and was probably partially contemporaneous with Pithouse A. The room's completeness and the similarity of wall slabs to those remaining in Pithouse C (versus those in cists) suggested slabs were salvaged from the earlier structure. The featureless, unplastered floor suggested the room itself was not completed or was used for storage. Pithouses usually front such rooms to the east and postholes south of the kiva suggest another structure may be in the area. It is possible the kiva construction, to some degree, utilized the depression of an earlier pit structure.

Some cists contained Lino Gray pottery and thus appear to be associated with pithouse occupation. Two types of cists were present. Baking pits were marked by slanted slab sides, much firecracked rock, and the usual charcoal, while storage cists had sandy bottoms, vertical slab sides, and tended to be smaller. Some exterior storage may possibly account for the paucity of storage features in pithouses. Not all cists were firmly associated with the Pueblo I occupation because, as Windes suggests, 29SJ 721 seems to be an area of intermittent activity; some baking activities may evidence another incidental, temporally fragmented, use of 29SJ 721 by the Chaco Anasazi.

SITE 29SJ 724

Site 29SJ 724 consisted of three curvilinear house mounds fronted by pithouses along the ridge crest flanking the eastern mouth of Werito's Rincon. The central roomblock of 10 rooms, ramada, and pithouse was excavated in 1974 by Windes (Windes 1976b). Excavation of 29SJ 724 and the Pueblo I component at 29SJ 299 represent the most successful investigations into single component Pueblo I sites by the Chaco Center; 29SJ 724 is the more substantial of the two (Figure 1.15).

The upper fill of Pithouse A consisted of relatively light trash in a matrix of aeolian and alluvial sand. A secondary use surface separated upper from lower fill components and was situated about mid-way in the fill. This otherwise undistinguishable sand surface contained at least eight small (ca. 10 cm dia.) slab-lined heating pits and probably represents later use of the depression as a windbreak or temporary camp. Below this surface a mixture of alluvium and structural rubble overlay a thin layer of charred organic material (partially cornstalks and cobs) under which was found the thin layer of clean floor sand noted in other pit structures. Walls and the bench were formed, as in other pithouses, by cutting back the native earth and plastering the lower portions. Roof support posts were set into the bench, with secondary laterals behind them. The floor contained a multitude of pits (21), the majority of which were clay-lined and left open at abandonment.

The rooms formed a curvilinear arc to the west of Pithouse A. All rooms were semisubterranean and architecturally distinguishable as either living (2) or storage rooms (8). Living rooms were characterized by light

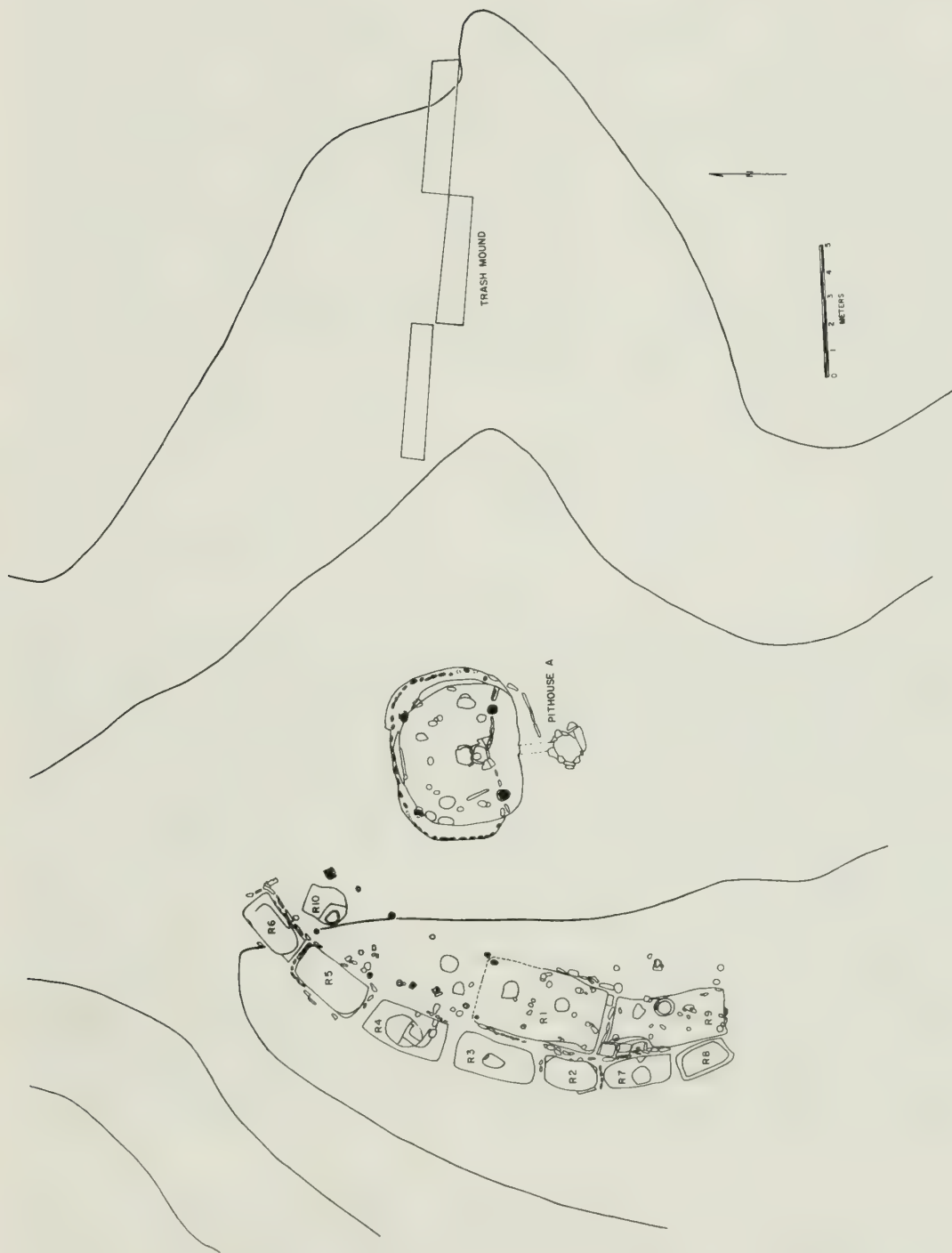


Figure 1.15. Plan view of 29SJ 724, Roomblock 1, after excavation.

walls, shallow rectangular floor plans, firepits, and tools scattered about the floor. Storage rooms, backing the ramada and living rooms, were generally ovoid, tub-shaped in cross section, and considerably deeper, but generally lacked floor pits; no firepits or floor-associated artifacts were noted. The rooms evidenced structural collapse, primarily that of adobe in the storage rooms. The wall fall in the living rooms (1 and 9) suggests a standing wall height no greater than 1.5 meters. Storage rooms were probably no higher than a meter and seem to have been roofed by light poles and brush while post supports and other evidence in the living rooms suggest a roof similar to, and possibly continuous with, that of the ramada. Two types of storage rooms were present: small, deep, tub-shaped rooms and larger, shallower basin-like ovoids. The smaller, deeper rooms are associated with the living rooms while the larger storage rooms back the ramada. This difference in structure prompted Windes to suggest a seasonal use of these rooms and/or the meeting of differential storage and preservation requirements of different foods.

A shallow trash mound was present just northeast of Pithouse A. It was approximately 9 m long and may be 3 - 5 m wide. Trash density was extremely low and the principal component of this deposit was ash and charcoal-stained sand. The lack of trash in rooms and the density of trash in the trash mound suggest the entire site was occupied for a brief time and abandoned as an entity without reuse of intra-mural areas as trash pits.

Windes' examination of the architecture has led him to suggest construction and occupation by two nuclear families. The different building habits of two individuals or groups were revealed by the depth of similar holes (mostly postholes), the amount of lignite used in postholes, the presence or absence of stone footing under posts, the presence of two auxillary heating pits in Pithouse A, and the presence of two living rooms. The internal consistency and balance of feature construction and storage and living room floor areas also indicates the presence of two groups. Floor areas between the habitation rooms (20.5 sq. m) and Pithouse A (22.1 sq. m) and also between the ramada (18.3 sq. m) and the storage rooms (22.8 sq. m) are roughly equal. The floor areas of living Room 9 and attendant storage rooms are both about 63% that of larger Room 1 and its storage rooms. Room 4 is fronted by postholes constructed like those in Room 9 and the western half of Pithouse A, suggesting the presence of a ramada. When ramada areas are considered, the 63% ratio between the two units does not change. Such a ratio suggests that the group which constructed and supposedly used Room 1, the majority of the ramada, and the eastern side of Pithouse A was slightly larger than the group responsible for Room 9 and the western side of Pithouse A.

Site 29SJ 724 offered the first archaeological evidence of a coalescence of family groups into a single "site." The smaller site size and homogeneity of features of a contemporaneous component at 29SJ 299 suggest that the aggregation of multi-family units into a single site was not universal at this time. Comparisons between the two sites suggest this may have been a period of flux and change in social as well as demographic organization. Windes' suggestion that intensified occupation of this

ridge may represent a progression of internal growth from the original population is not negated by the data from 29SJ 724, but the differences would seem to indicate an amalgamation of populations distinct enough to be reflected in both individual space requirements and basic construction techniques. Habitations supposedly constructed by males in a matrilineal society provide but one scenario to account for the diversity of construction methods. Although the pattern of a living room backed by two smaller storage rooms is evident at 29SJ 724, the diversity of construction techniques indicates that a broad spectrum of construction methods had not yet been standardized, which in turn suggests that at least some community-oriented tasks were still probably organized and implemented along individual family lines.

Decorated ceramics, such as La Plata, Lino, Piedra, and White Mound Black-on-white, initially indicated an occupation date of A.D. 725-750; however, archaeomagnetic samples suggest the occupation of 29SJ 724 occurred slightly later, about the turn of the ninth century (Table 1.16).

SITE 29SJ 629

Located near the head of Marcia's Rincon, 29SJ 629 was excavated during the field seasons of 1975-1976 by Thomas C. Windes (Windes 1978a). Although the site was selected to examine the Pueblo I period, subsequent excavation revealed it to be primarily an early Pueblo II (A.D. 900s to mid 1000s) with a small Pueblo III (1100s) reoccupation (Table 1.17). Architecture consisted of eight rooms oriented curvilinearly to the east and fronted by a ramada/plaza and pit structure (Figure 1.16).

Room fill was primarily of alluvium and structural rubble--mostly adobe. Exceptions to this were rooms 2, 9, and the eastern third of 3, which appeared to contain fill redeposited from Pithouse 2 during the kiva's construction. The kiva was offset into the earlier pithouse depression and was filled with alluvium. Pithouse 2, the primary habitation pithouse of the site, contained burned material and trash just above the floor while the remainder of the fill was structural collapse materials mixed with and capped by alluvium. Pithouse 3, partly contemporary with and south of Pithouse 2, served as a trash repository until site abandonment when the remaining pit was filled with alluvium. The trash mound, per se, consisted of massive undifferentiated deposits which also filled an old water course along the northeast perimeter of the site.

Three tub-shaped rooms (5, 6, and 7) formed the core of the room-block. These rooms were differentiated from similar structures at other sites in the absence of upright slabs which normally suggests low, flimsy walls. These rooms, also semisubterranean, were topped by comparatively thick, unfinished tabular sandstone masonry offset from the center of the "tub" giving the impression of a circumferential interior shelf at the base of the masonry. An adobe plaster and spall veneer was apparently applied over the core sandstone, at least on the exterior eastern walls.

Table 1.16. Site 29SJ 724 dimensions and dates.

| | <u>Width bench</u> | <u>Wing wall floor m²</u> | <u>Depth</u> | <u>N-S</u> | <u>E-W</u> | <u>m²</u> |
|--------------|------------------------|--|--------------|------------|------------|----------------------|
| Pithouse A | 0.4-0.8 | 4.10 | 2.00 | 4.60 | 5.40 | 22.10 |
| Room 1 | | | 0.2-0.3 | 5.00 | 2.74 | 12.30 |
| Room 2 | | | 0.83 | 1.96 | 1.10 | 2.17 |
| Room 3 | | | 0.33-0.50 | 3.05 | 1.46 | 4.32 |
| Room 4 | | | 0.30 | 2.70-3.15 | 1.60 | 4.77 |
| Room 5 | | | 0.35 | 3.00 | 1.45 | 4.28 |
| Room 6 | | | 0.23-0.33 | 2.43 | 1.22 | 3.09 |
| Room 7 | | | 0.63 | 2.51 | 1.03 | 2.65 |
| Room 8 | | | 0.70 | 1.86 | 1.07 | 1.53 |
| Room 9 | | | 0.15-0.20 | 4.30 | 1.90 | 7.75 |
| Room 10 | | | 0.33 | 1.71 | 1.42 | 1.96 |
| Ramada | | | - | 7.30 | 2.50 | 18.30 |
| Trash Mound | | | 0.20 | 3.50 | 9.00 | 31.50 ca |
| general site | | | | 19.0 | 15.0 | 285.00 |

Archaeomagnetic Dates:

| | | |
|----------|---------------------------|-----------|
| ESO 1090 | Room 9 fl 1 firepit 1 | A.D. 860* |
| ESO 1091 | Pithouse a fl 1 firepit 1 | 790+37 |
| ESO 1413 | Ramada firepit 2 | 760+42 |
| ESO 1418 | Pithouse A fl 1 firepit 3 | 885+31 |
| ESO 1424 | Pithouse A fl 1 firepit 5 | 800+17 |
| ESO 1425 | Pithouse A fl 1 firepit 4 | 790+37 |

* Large alpha, not a confident date.

Table 1.17. Site 29SJ 629 dates.

Dendrochronology dates:

| | | | | |
|---------|------------------------|------|------|-------------|
| CNM 241 | Room 9 Lv 1-2 | PP* | A.D. | 720np-792vv |
| CNM 347 | Pithouse 2 Ly 5 | Pnn* | | 737p-813vv |
| CNM 348 | Pithouse 2 Ly 5 | " | | 875fp-943vv |
| CNM 350 | Pithouse 2 vent lintel | " | | 942p-987vv |

Archaeomagnetic dates:

| | | |
|----------|------------------------------------|------------|
| ESO 1297 | Room 3 fl 1 fireplace 1 | na |
| ESO 1403 | Room 9 fl 1 fireplace 1 | 1100+45 |
| ESO 1404 | Room 5 fl 1 | 1010+ |
| ESO 1406 | Room 3 fl 1 heating pit 2 | 1050-1080+ |
| ESO 1407 | Room 3 fl 1 heating pit 1 | 1050-1080+ |
| ESO 1408 | Room 3 fl 1 heating pit 1 | 1050-1080+ |
| ESO 1409 | Room 3 fl 2 fireplace 1 | 970+ |
| ESO 1410 | Kiva fl 1 fireplace 1 | 1180+* |
| ESO 1411 | Plaza grid 16 heating pit 1 | 1010+ |
| ESO 1412 | Plaza fireplace 2 early burn | 1000s* |
| ESO 1414 | Pithouse 2 meal bin 2 | 1160-1185+ |
| ESO 1415 | Room 9 fl 1 fireplace 1 early burn | 800+39 |
| ESO 1416 | Pithouse 2 fl 2 heating pit 3 | na |
| ESO 1417 | Pithouse 2 fl 2 heating pit 2 | na |
| ESO 1419 | Pithouse 2 fl 2 heating pit 4 | na |
| ESO 1431 | Plaza fireplace 2 later burn | 1070+* |
| ESO 1458 | Pithouse 2 meal bin 1 | 1195+42 |
| ESO 1462 | same as ESO 1297 | |
| ESO 1514 | Room 5 west wall burn | na |

C-14 dates (all charcoal):

| | | | |
|---------|--------------------------------|-----------|-------------|
| SI 3713 | Pithouse 2 fl 2 heating pit 2 | A.D. 1340 | B.P. 610+55 |
| SI 3714 | Plaza grid 29 Ly 5 fireplace 5 | 875 | 1075+55 |
| SI 3715 | " " 14 Ly 3 fireplace 6 | 555 | 1395+50 |
| SI 3716 | Room 3 heating pit 1 | 1020 | 930+65 |
| Di 793 | Pithouse 3 fl 1 heating pit 1 | 960 | 990+80 |

* Ponderosa pine.

* Pinyon.

* Large alphas, estimated dates.

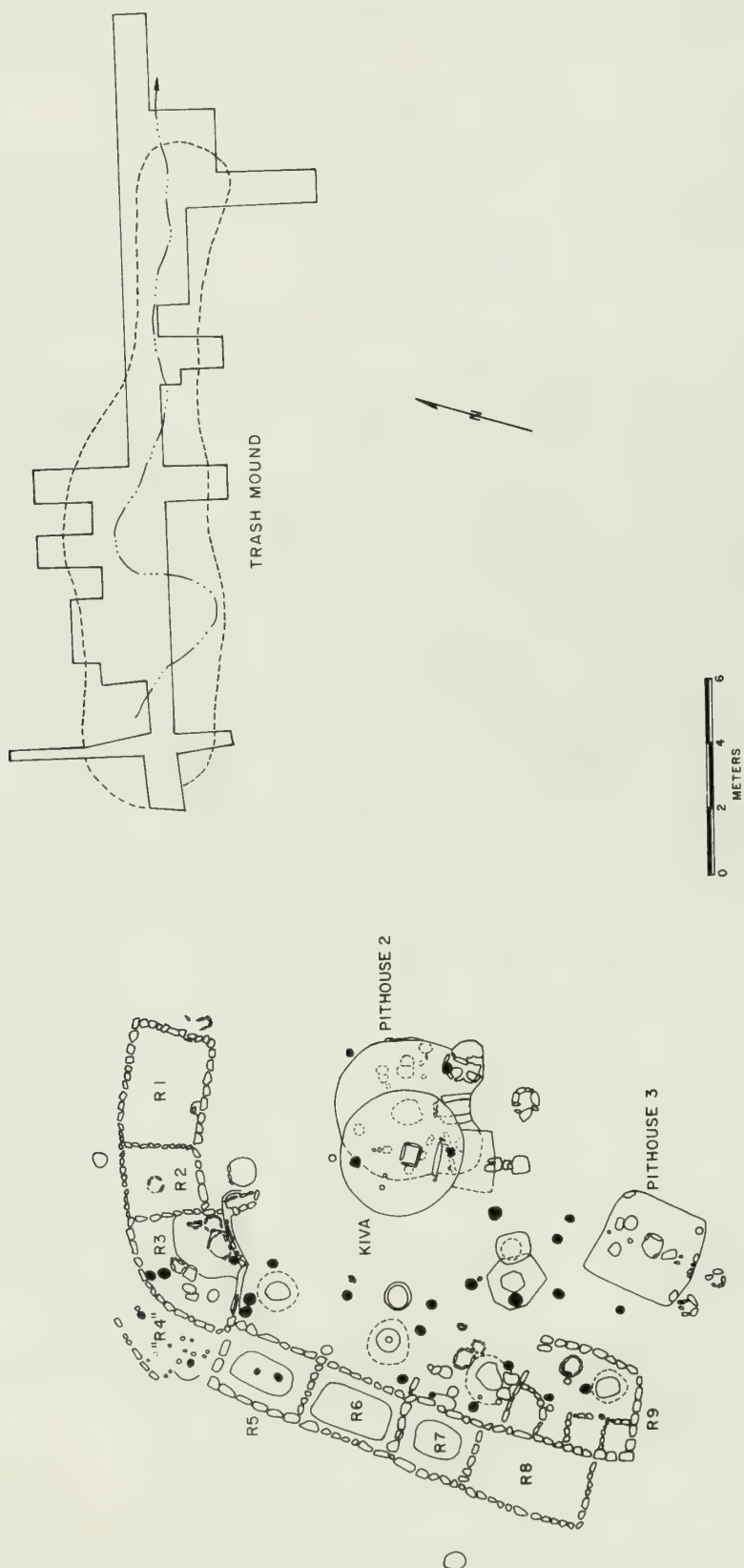


Figure 1.16. Site 29SJ 629.

Reconstruction of wall heights from proportions of masonry and adobe in the fill led Windes to suggest these rooms were no higher than 1.5 m and comparable to similar tub-shaped rooms elsewhere. Rooms 2, 3, 8, and 9 were added to these core rooms and exhibit simple, unfinished sandstone masonry set in ample mortar. Room 8 is similar to the tub-shaped rooms in lacking floor features. Analysis of flotation and pollen samples suggests that these rooms were used, at least in part, as storage areas for economic plants (Cully 1981; Toll 1981).

Rooms 9 and 3 appear to be habitation rooms with storage pits or bins, firepits, and smaller heating pits. Both rooms apparently were backed by high western walls, while walls fronting the plaza were probably low and did not form a completed "room" enclosure. The nonexistent or extremely low south wall of Room 3 and north wall of Room 9 allowed for free access to the intervening plaza area. All floor areas and structure dimensions are presented in Table 1.18.

A single, slightly basin-shaped, irregular plaza surface was roofed by a framework of posts with each four-post "unit" roughly centered in front of a room. Windes postulated the initial construction of deep bell-shaped pits (storage) centered under each ramada segment. These deep bell-shaped pits are rather uncommon in Anasazi sites and Windes suggests they were not long used at 29SJ 629. All were filled with Red Mesa Black-on-white period trash, have later intrusive pits overhanging or crowding their openings, or appear to have been intentionally filled with dirt and capped with rocks. Later use of the plaza area, at least in terms of features, seems to have been clustered at the south end near Room 9. The presence of a late firepit, bin, and slab metate north of the kiva near Room 1 suggests that this plaza section was associated with the last occupation and not related to the events occurring in the main plaza area.

Pithouse 2 exhibited the circular floor plan with a bilobate floor area behind the wing walls suggestive of ninth century construction. Pithouse 2 had three floors, the lower two exhibiting a symmetrical distribution of storage and heating pits, with mealing bins in the lobes of the wing wall area. The number and symmetry of floor pits, the floor area behind the wing wall, and the investment in two contemporary surface habitation rooms suggest Pithouse 2 was occupied by two nuclear families. The structural similarity and general architectural configurations between this site and an earlier Pueblo I site, 29SJ 724, are most conspicuous (Windes 1976b). The latest floor exhibits only the central firepit and a single mealing area. About A.D. 1000 the change was made from an above-floor ventilator to a subfloor ventilator. These later modifications prompted Windes to suggest Pithouse 2 represents a transition from secular habitation to a more specialized or ceremonial activity.

Pithouse 3, a small squarish structure, devoid of extensive floor features, seems to have been contemporaneous with the last domestic use of Pithouse 2 (Floor 2). It seems to have been abandoned during the continued use of Pithouse 2 (Floor 1?) for it was used as a trash repository before the continuum of trash deposition (as represented by ceramics) was broken at 29SJ 629. Windes attributes construction of Pithouse 3 to

Table 1.18. Site 29SJ 629 dimensions.

| | <u>Depth</u> | <u>N-S</u> | <u>E-W</u> | <u>Floor m²</u> |
|-------------------|--------------|------------|------------|--------------------------------|
| Kiva | 2.04 | 3.70 | 3.88 | 11.26 |
| south recess | | 1.10 | 1.80 | 2.09 |
| Pithouse 2 | 2.01 | 4.15 | 4.38 | 16.15 |
| area behind wings | | | | 4.67 |
| Pithouse 3 | 1.72 | 3.00 | 2.90 | 8.39 |
| Room 1 | 0.34 | 2.20 | 3.40 | 7.15 |
| Room 2 | - | 2.10 | 2.00 | 4.16 |
| Room 3 | 0.68 | 2.90 | 3.70 | 7.58 |
| Room "4" | - | 2.30 | 1.70 | 4.76 |
| Room 5 all | 0.86 | 2.78 | 1.72 | 4.60 |
| tub only | | 1.90 | 0.90 | 1.60 |
| Room 6 all | 0.81 | 2.86 | 1.82 | 4.58 |
| tub only | | 2.30 | 1.30 | 2.80 |
| Room 7 all | - | 1.80 | 2.18 | 3.68 |
| tub only | | 1.00 | 1.40 | 1.34 |
| Room 8 | - | 2.15 | 3.50 | 6.72 |
| Room 9 | 0.48 | 3.37 | 2.85 | 9.10 |
| bin 1 | 0.80 | 0.90 | 1.18 | 0.84 |
| bin 2 | 0.70 | 0.87 | 0.83 | 0.71 |
| bin 3 | 0.30 | 0.70 | 0.80 | 0.50 |
| Plaza all | - | 9.00 | 3.00 | 66.00 |
| under posts only | | | | 34.55 |
| Trash Mound | 1.20 | 4.35 | 19.00 | 23.35 |
| general site | | 42.00 | 19.00 | 799.00 |

either intra-site population growth and/or an architectural transition to formalized ceremonial chambers. Apparently with the renovation of Pithouse 2, Pithouse 3 became obsolete, evidence perhaps that either population growth decreased or 29SJ 629 became a locus for special activities with a concomitant shift in domestic occupation/activity to a nearby site such as 29SJ 627.

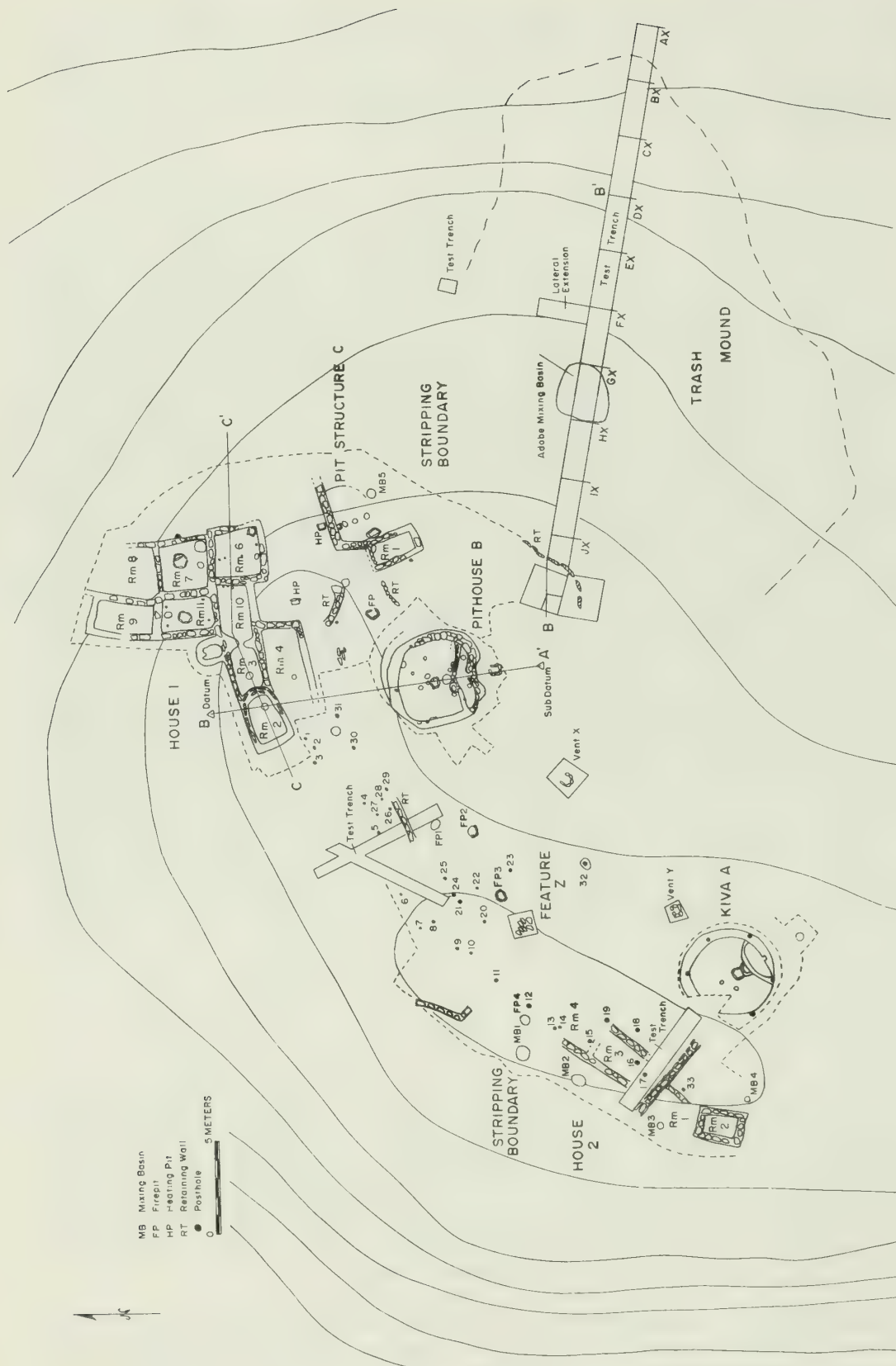
The last use of 29SJ 629 as a specialized work area in the early to mid-1000s is suggested by the artifact assemblage and burials. Although temporal placement is not secure, both burials and all identifiable parts were of adult males--an abnormal distribution. The most common artifact was turquoise. The majority of this material was located on the remnant of the upper floor of Pithouse 2 and in one of the plaza's large bell-shaped pits. The bulk of the turquoise was composed of hundreds of thousands of minute fragments, although larger finished, partly finished, and broken artifacts were found. Lapidary tools, e.g., chipped stone drills, possible cutters, hammers, and sandstone abraders, were also recovered--both in association with the turquoise and in storage rooms. Following abandonment of the site, tools, other artifacts, and evidence of tasks last undertaken should constitute the most "visible" archaeological assemblage (rather than intermixed "trash"). The association of ornamental material, related processing tools, and the revamped upper floor of Pithouse 2 suggests that a specialized activity occurred at 29SJ 629 at the expense of or in addition to "normal" domestic subsistence activity.

The reoccupation of 29SJ 629 was apparently entirely of a "ceremonial" nature. Windes suggests inhabitants of nearby 29SJ 630, which exhibits the appropriate later ceramics and architecture, may have been responsible. A key-shaped kiva was constructed with a single featureless room (no. 1) and a plaza cooking area to the north of the kiva. The kiva lacked either a bench or major postholes, suggesting roofing timbers were laid on a low coping of masonry around the surface perimeter. The few sherds associated with this component suggest its duration was either extremely short or limited. Ceramics of White Mountain Redware and Chaco McElmo Black-on-white suggest an 1100s occupation.

SITE 29SJ 1360

The 29SJ 1360 is situated at the top of the ridge extending north from Fajada Butte. The excavations in 1974 by C.R. Morrison, were designed to examine the Pueblo I period. Although a Pueblo I occupation is present, it represents but a small, early component of the site. A Pueblo II to late Pueblo II occupation, approximately A.D. 900-1030, was the principal component investigated by excavation. The site consists of approximately 18 rooms and 5 "kivas" (McKenna 1984).

The house mounds, a western set of approximately 6 rooms and a large eastern group of 10, were interconnected by a ramada (Figure 1.17). Attached to the northern exterior wall of rooms 3-10 in the eastern house



2-80 130
JL 823488

Figure 1.17. Site 29SJ 1360.

was an adobe parrot bin; a macaw (*Ara cf. macao*) was recovered from the upper fill of Pithouse B. North of and behind the ramada the foundations of two to four more rooms were found. An L-shaped wall at the southern periphery of the site partially enclosed catchment basins and concentrations of manos indicative of a special mealing area. Southeast and slightly downslope from this arc of surface architecture was evidence of five (possibly noncontemporaneous) pit structures, two of which were excavated.

The western roomblock, House 2, consisted of wall foundations with some masonry cores; depth of fill afforded only surface stripping and wall clearing. Likewise, the ramada was simply cleared of surface overburden to the first use-surface. The eastern roomblock, House 1, exhibited approximately half a meter of fill over room and attendant plaza floors. All rooms were filled with alluvium and structural collapse. A trash mound, southeast of site architecture, was mostly associated with the earlier Pueblo I component. Occupational trash associated with Pueblo II was deposited in Kiva A, the westernmost pit structure excavated, which probably fell into disuse with the (earlier) abandonment of House 2.

House 1 excavation revealed three basic techniques of construction. Plain adobe construction was restricted to the parrot bin and possibly one wall. In the earliest component of the site a partially subterranean tub-shaped room (no. 2) was lined with adobe but capped with upright slabs, construction similar to tub-shaped rooms at 29SJ 724 and other Pueblo I sites. The majority of the walls were apparently small-scale versions of Judd's Type I masonry (1964:Plate 10). Large, irregular, tabular sandstone cores were placed over adobe block foundations and a veneer of spalls and tan plaster was applied. The degree of erosion to this veneer, the variable amounts of adobe between the core stones, and the varying thickness of core stones give a spurious appearance of technical difference.

Rooms 8 and 4 may have been living rooms, though lacking diagnostic features due to erosion and some remodeling. Other rooms, containing centralized, large, deep firepits similar to outside baking pits, were probably special food processing (parching and smoking?) and storage rooms. A corner room (no. 6) contains a smaller corner firepit and may have served as a living room at one time; however, reflooring suggests that, at abandonment it too probably served as a storeroom. The principal habitation at abandonment was in one of the "kivas," Pithouse B.

A transitional development from secular to ceremonial structures seems to be suggested by the construction of the two excavated pit structures. Stratigraphically and architecturally Kiva A is one of the latest constructions on the site, yet it was abandoned and filled with trash dominated by Red Mesa Black-on-white ceramics of the Pueblo II period. Kiva A lacks the abundance of miscellaneous pits and heating features associated with domestic habitation. The structure and architecture of Kiva A has been restricted and formalized in a manner most often associated with kivas: deep circular construction, no high wing walls, and a ventilator-firepit-sipapu alignment on a floor devoid of extracurricular

pits. Pithouse B, however, is more properly a pithouse exhibiting a squat, slightly D-shaped trilobate floor plan, several bell-shaped storage pits, an auxillary heating pit, a central firepit-ashpit, deep storage cists in the area behind the high wing walls, and five human and two dog "burials" on the floor. The diversity and differentiation of artifact assemblages on the bench, main floor, and area behind the wing wall all point to an active habitation structure. The catastrophic demise of occupants and in situ abandonment of all contents in Pithouse B seems to characterize the final occupational episode at 29SJ 1360.

With the exception of Pithouse B, 29SJ 1360 exhibits the same curation of building materials noted at other sites. Kiva A seems to have had construction beams salvaged prior to use as a trash pit. There is ample evidence of masonry razing, salvage, and selected reuse of worn out artifacts for construction. Pithouse B itself was apparently built in the depression of an earlier pithouse; an associated dendrodate (Table 1.19) suggests construction members were reused from earlier structures. Dimensions and floor areas of all major site features and structures are summarized in Table 1.20.

The artifact analysis indicated that a period of transition and expansion of extra-canyon contacts was occurring during the occupation of 29SJ 1360. Gallup Black-on-white design styles were replacing those of Red Mesa. Evidence was present for on-site production of both utilitarian goods, such as chipped stone tools, pottery, bone tools, as well as ornamental objects of jet, turquoise, shale, with the possible reworking of shell from the Pacific Ocean. Artifacts from the latest proveniences indicate an increase in the diversity and volume of exotic raw material represented at the site.

Without the complete excavation of 29SJ 1360 a full description and assessment of use through time is not possible. The contemporaneity of the other three pit structures is unknown. The area-wide trash dispersion, proximity and orientation of other house mounds, selective abandonment and destruction of certain components of 29SJ 1360, and the apparent specialization of the last used rooms as storage and processing areas suggest that 29SJ 1360 may have been only a portion of a larger, nearby site--29SJ 1278.

Such a reoriented view of this settlement would reveal a very large site featuring a plaza-enclosing rectangular roomblock, a special central plaza trash/burial mound (as indicated by numerous burial slabs from the pothunting expeditions of Roberts, Pepper, Wetherill, and Judd), with extensive sheet trash to the east of the roomblock, a possible road running NE-SW through the center of the site, and continued occupation of the 29SJ 1278 house mound after the abandonment of 29SJ 1360. Such a perspective would relegate 29SJ 1360 to but one component of a more diversified entity which saw use and reuse of this area as part of a larger site.

Site 29SJ 1360 has habitation structures and identifiable room suites like other village sites, but these were possibly not used as such during

Table 1.19. Site 29SJ 1360 dates.

Dendrochronology dates:

| | | | |
|---------|-----------------|--------|----------------|
| CNM 229 | Pithouse B Lv 1 | Pinyon | A.D. 758-862vv |
| CNM 231 | " " north post | " | 776fp-871+vv |

Archaeomagnetic dates:

| | | |
|----------|--|-------|
| ESO 934 | House 2 Room 1 feature A | na |
| ESO 1730 | House 1 Room 7 fl 1 firepit 1 1st burn | 1070* |
| ESO 1733 | " " Room 11 fl 1 heating pit 1 | na |
| ESO 1734 | " " Room 7 fl 1 firepit 1 2nd burn | na |
| ESO 1736 | " " Room 11 floor 1 firepit 1 | 910* |

* Large alphas, not confident dates.

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Table 1.20. Site 29SJ 1360 dimensions.

| | Room/ main chamber | | Diameters in ante chamber | | Bench width | Depth | Floor area m ² | | |
|---------------------------|-----------------------|------------|------------------------------|------------|----------------|-----------|---------------------------|-------|----------------------|
| | <u>N-S</u> | <u>E-W</u> | <u>N-S</u> | <u>E-W</u> | | | main chamber | bench | behind wing walls |
| | | | | | | | | | |
| Kiva A w/bench | 3.70 | 3.70 | | | | 1.80 | 12.75 | 6.10 | |
| | 4.13 | 5.15 | | | | | 18.85 | | |
| Pithouse B w/bench | 4.15 | 4.20 | | | | 2.00 | 12.55 | 4.19 | 1.81 |
| | 4.60 | 5.35 | | | | | 16.74 | | |
| <u>House 1:</u> Room 1 | 1.90 | 1.25 | | | | - | 2.31 | | |
| Room 2 | 1.40 | 2.15 | | | | 0.91 | 2.73 | | |
| | 1.38 | 2.30 | | | | 0.34 | 3.03 | | |
| Room 3 | 1.80 | 4.90 | | | | 0.20 | 8.74 | | |
| Room 4 | 2.38 | 2.50 | | | | 0.46 | 6.05 | | |
| Room 6 | 2.48 | 2.50 | | | | 0.54 | 6.15 | | |
| Room 7 | 3.65 | 2.83 | | | | 0.35 | 10.33 | | |
| Room 8 | 3.05 | 1.70 | | | | 0.30-0.48 | 5.17 | | |
| Room 9 | 1.73 | 3.10 | | | | 0.34 | 4.51 | | |
| Room 10 | 3.00 | 1.80 | | | | 0.49 | 5.33 | | |
| Room 11 | 1.08 | 0.75 | | | | 0.41 | 0.66 | | |
| Bin 1 | | | | | | | | | |
| <u>House 2:</u> Room 2 | 1.70 | 1.08 | | | | - | 1.27 | | |
| Room 3 | 3.65 | 1.60 | | | | - | 5.84 | | |
| | 20.00 | 26.80 | | | | 0.10-0.60 | 536.00 | | |
| Trash Mound | | | | | | | | | |
| general site | Site dimensions | | | | | Site area | | | |
| | 50.00 | 67.00 | | | | 3350.00 | | | |

the final occupation. It is possible the occupants of Pithouse B and the rooms of House 1 represent an isolated family unit and work area associated with the larger house (29SJ 1360/29SJ 1278). Following the deaths of individuals in Pithouse B, the location of 29SJ 1360 was apparently abandoned while occupation of 29SJ 1278 proper continued into, at least, the 1100s.

SITE 29SJ 627

Site 29SJ 627, located in the center of the outwash plain in Marcia's Rincon, represents the most extensive and complex investigation of a village site by the Chaco Center (Truell 1980). Final excavation revealed 25 rooms, at least 7 pit structures, an extensive trash mound, and an array of superimposed ramadas and plaza surfaces. It is impossible to do justice to the intricacies of excavation and interpretation at 29SJ 627 in the short space allotted for the summarization of its constituent parts.

Occupation of the site seems to have occurred between approximately A.D. 775 and 1150 or roughly 375 years. Within the occupational span of 29SJ 627, Truell was able to distinguish three major episodes of site construction or modification. Figures 1.18 through 1.20 present plan views of these major construction periods. Figure 1.21 depicts the composite of all architecture and associated extra-mural structures.

Site stratigraphy is relatively complex and reference to site profiles greatly elucidates the matter. The site was covered by a thin mantle of developing topsoil. The uppermost rooms were predominately filled with mixtures of alluvium and structural rubble. Drainage patterns in the rincon probably accounted for the greater amount of alluvial disturbance noted in the southern and northern portions of the house mound. The latest trash densities in the house mound, although not exceptional, were highest in the northern, eastern, and a southern room (no. 7) reflecting, possibly, both the effects of casual trash scatter and alluvial action on upslope sites. Except for the western tier of "storage" rooms, substantial walls below the final construction surface are absent and "rooms" per se are really continuous or low-walled ramada work areas. These ramadas, associated with lower floors in the storage rooms, are uniformly covered with structural melt, probably from the razing and leveling of low ramada walls in preparation for another surface. Deposits east of the roomblock are primarily alluvial melt from the rooms. The six pit structures in the plaza are filled with trash or alluvium. Trash-filled structures are Pithouse C, Kiva E, and probably unexcavated pit structure H, below E. Kiva G was filled with alluvium, while Kiva D's fill was a complex mixture of trash and alluvium. The lower portion of pit structure F was filled with trash chronologically distinct from the upper half, which suggested a hiatus in deposition. The trash mound, a massive, almost undifferentiated deposit, lies to the east, beyond Pithouse C. The eastern half was associated with Red Mesa ceramics; the

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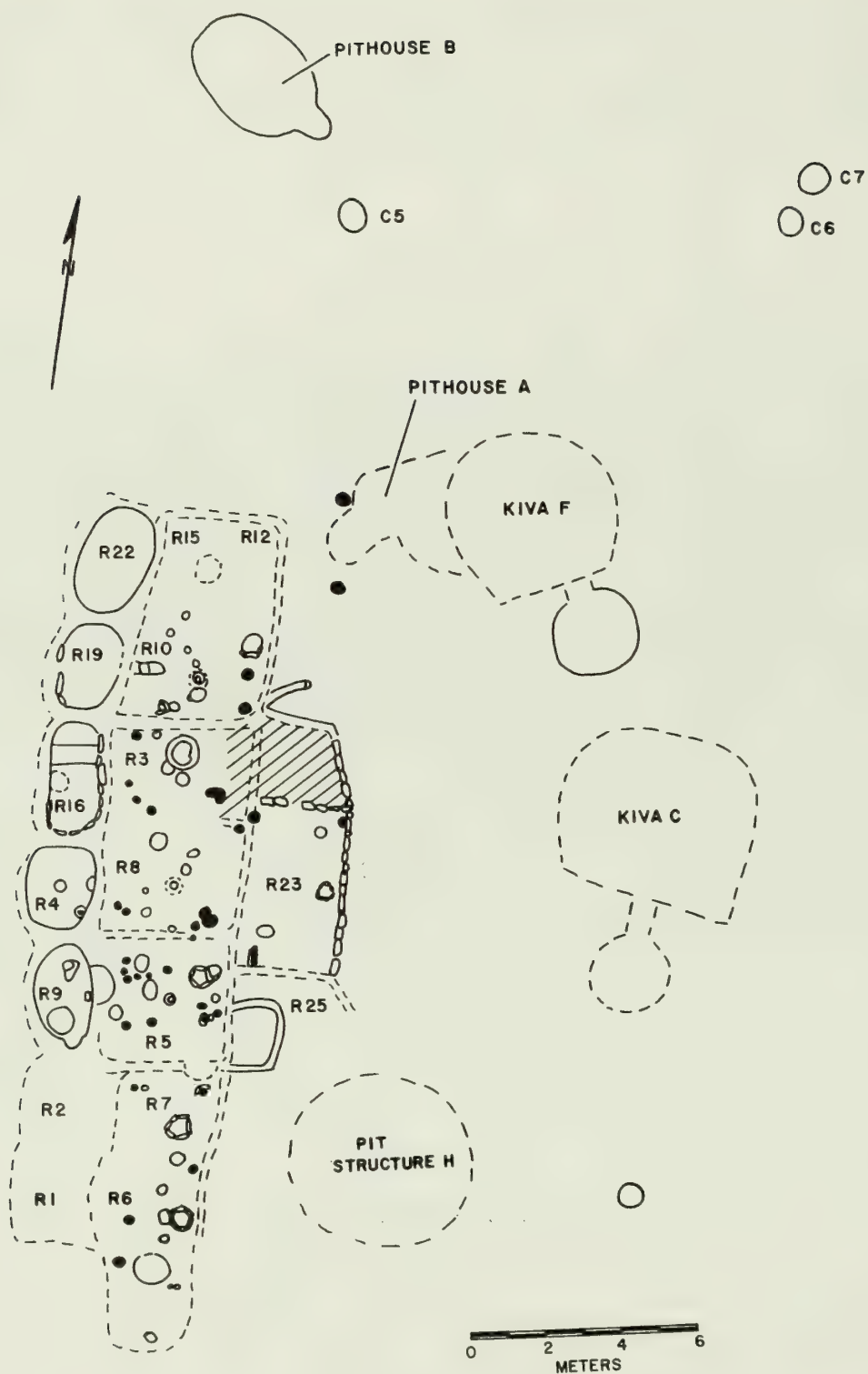


Figure 1.18. Site 29SJ 627, first construction A.D. 780-910+.

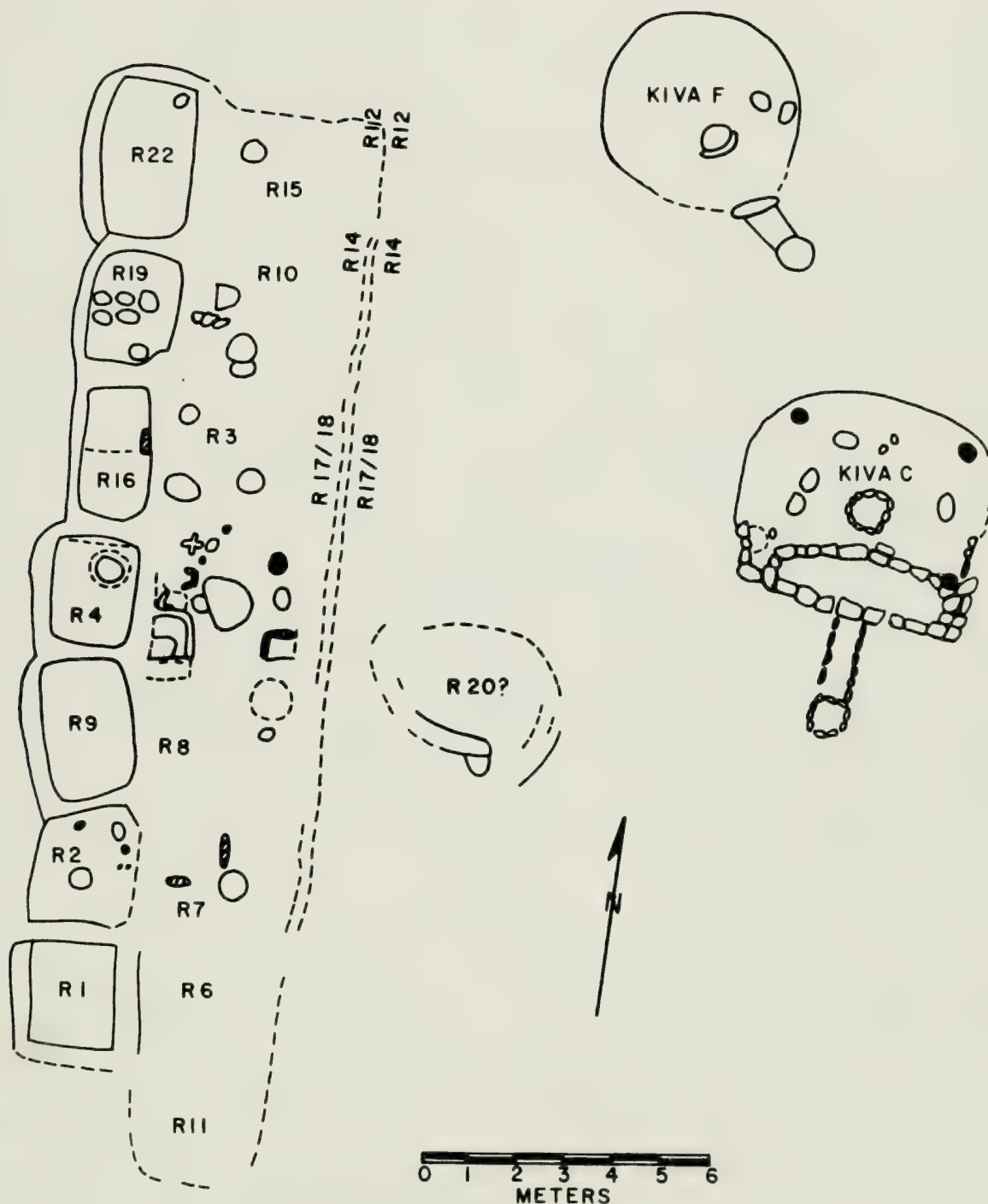


Figure 1.19. Site 29SJ 627, second construction A.D. 950-1000.

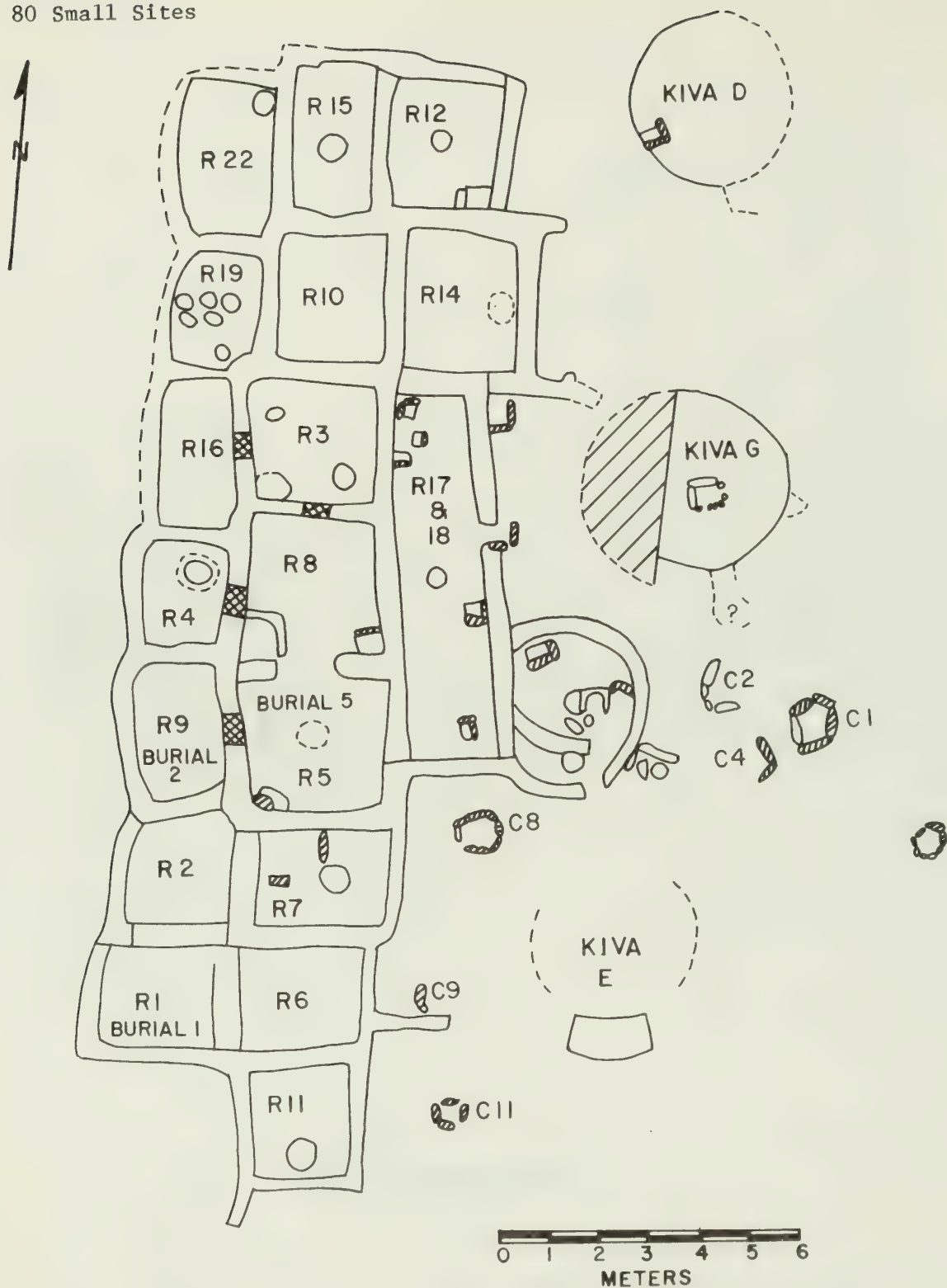


Figure 1.20. Site 29SJ 627, third construction A.D. 1000-1050.

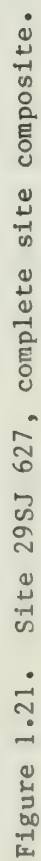


Figure 1.21. Site 29SJ 627, complete site composite.

later, western portion contained a mixture of Red Mesa and Gallup Black-on-white.

Construction techniques involved puddled adobe, upright slab and turtleback foundations, single horizontal masonry, and direct plastering of walls over native soil, representing all the methods known to archaeologists for prehistoric construction in Chacoan small sites. The earliest construction saw the excavation and puddle adobe lining of the semisubterranean western tier of storage rooms. This adobe was occasionally augmented with spall "tempering" inclusions. These rooms maintained their architectural integrity throughout the occupation of the site. The ramada was subdivided into units by the use of apparently low adobe walls constructed, in part, with turtlebacks. These ramada areas were sandwiched between other, simple, low masonry walled work areas on the east, and by the tub-shaped storerooms on the west. Postholes indicate this area was roofed by a light ramada roof probably largely open on the sides. Pithouse C, the habitation structure in this period, also evidenced simple masonry both for wing wall and southern wall construction. This masonry was associated with disturbed fill and may have acted as a retaining device associated with remodeling thus serving as a counterpoint to the simple plaster on native soil evident on the rest of the pithouse walls.

Construction in the second period is rather vague and is indicated by no major change in architectural style in the roomblock. A continuously poured surface was applied to leveled fill along the central portions of the roomblock; its exact extent was not fully delineated. A reworking of a postulated earlier pithouse (A) apparently began at this time. Pit structure F was constructed, either during this time or at the end of the first period. Smaller, more circular, devoid of masonry, and with some indications of roof support plan modification, this structure was suggested as an intermediary step in the development between later kivas and earlier domiciliary pithouses. During its occupation subfloor ventilators were apparently modified to an on-floor ventilating system. Pithouse H and continued occupation of Pithouse C may be associated with this period.

Construction of horizontal masonry rooms over other prepoured floor areas constitutes the final major building period. Horizontal, simple to compound masonry rests on wall bases of upright slabs or directly on prepoured floor surfaces. Three kivas in the plaza were associated with this period; two, D and E, were dropped into existing pit structures. The northern two, D and G, both exhibit direct plaster over native soil. The southernmost, Kiva E, exhibits a masonry veneer and six pilasters within the unconsolidated trash fill of early Pit Structure H in which Kiva E was entirely constructed. This is the only masonry-lined kiva at 29SJ 627 and Truell believes it was the last constructed (Table 1.21), but the veneer-like quality of the masonry only (ca. 12 cm thick) suggests its use may be more a response to retaining unconsolidated fill than to any progression toward masonry kivas. All three kivas are devoid of roof supports on the floor, suggesting that flat horizontal roofs, approximately at ground level, were the rule. Both kivas G and E had southern recesses. Formalization of floor features was apparent in the location and construction of

Table 1.21. Site 29SJ 627 dates.

Archaeomagnetic dates:

| | | | |
|----------|---------------------------|------|------------|
| ESO 933 | Room 14 fl 1 firepit 1 | A.D. | na |
| ESO 1291 | Room 8 fl 2 firepit 2 | | 1200+55* |
| ESO 1292 | Kiva C fl 1 heating pit 2 | | 795+42 |
| ESO 1293 | Room 8 fl 3 heating pit 1 | | 700s-800s* |
| ESO 1294 | Room 21 fl 1 firepit 1 | | 1175+15 |
| ESO 1295 | Kiva E fl 1 firepit 1 | | na |
| ESO 1296 | Kiva F fl 1 firepit 1 | | 1000+40 |
| ESO 1299 | Kiva G fl 1 firepit 1 | | na |
| ESO 1559 | Kiva G fl 1 firepit 1 | | 1120* |

C-14 dates (all charcoal):

| | | | | | |
|---------|-----------------------|------|------|------|---------|
| SI 3707 | Kiva F fl 1 firepit 1 | A.D. | 670 | B.P. | 1280+65 |
| SI 3708 | Kiva G fl 1 firepit 1 | | 1015 | | 935+65 |
| SI 3709 | Kiva E fl 1 firepit 1 | | 1085 | | 865+65 |
| SI 3710 | Kiva D fl 1 firepit 1 | | 435 | | 1515+60 |
| SI 4502 | Room 9 fl 2 firepit 1 | | 1185 | | 765+50† |
| SI 4502 | Room 9 fl 2 firepit 1 | | 1035 | | 915+60 |
| Di 792 | Room 5 fl 1 firepit 1 | | 1150 | | 800+70 |
| Di 795 | Room 9 fl 2 firepit 1 | | 1220 | | 730+60 |

* Large alphas, estimated dates.

† Sample retreated by boiling in 6N HCL, followed by the 2% N₂OH and 2N HCL pretreatment in hopes of removing lingering carbonate in the sample.

firepits, deflector, and ventilator systems with the concomitant reduction in miscellaneous, domestically related pits. Lastly, two temporal trends culminate with kiva orientations stabilized on a true north-south alignment and kivas constructed nearer the roomblock in this final period.

Truell's discussion of 29SJ 627's architecture and stratigraphy suggests several conservative or consistent trends throughout the site's prehistory. The construction of paired storage units with a large fronting living/work area is apparently maintained through time at 29SJ 627. Changes in structure sizes and areas through time are presented on Table 1.22. The continuous reuse of space in similar manners and the articulation of later (upper) walls with earlier (lower) walls suggested not only conservative use of space, but a continuation of the same lineage based group(s) through time at 29SJ 627. Truell divides the initial construction episode (A.D. 780-910) into a series of rather rapidly occurring events.

Probably associated with the occupation of Pithouse C, storage room 9 and living area 5 were constructed. At the same time storage rooms 4 and 16 and living areas 8 and 3 were added immediately to the north. This section of the site was apparently the "core" habitation area throughout the site's occupation. These initial surface rooms, by virtue of abutments, frequency of domestic features, and postholes, were distinguishable from other first period constructions. Shortly thereafter, storage rooms 19 and 22 and the accompanying low-walled ramada area were constructed. This pairing of units was maintained throughout the occupation of the site. Apparently late in this period rooms 2 and 1 and their associated ramada areas were added to the southern portion of the roomblock; they certainly were distinguishable by the second period of construction (A.D. 950-1000).

The second major construction episode involved the reflooring of the storage rooms and the addition of another ramada surface approximately 20-30 cm above the first. The low-walled masonry rooms forming the eastern tier of early construction were apparently thus obliterated as bounded space. This conclusion is tentative, for destruction of this occupational episode was most severe during the ensuing period's construction. The lack of postholes in the ramada suggests it may not have been roofed. Floor construction in this episode involved the use of a distinctive tan plaster markedly different from the gray-hued material of earlier and subsequent periods. Second construction floors in rooms 4, 16, 19, and 22 may have been in use until end of occupation. "Room" 5 is still the center of activity with regard to features. Reference to Figure 1.20 will demonstrate that the process of building pithouses closer to the roomblock had begun.

The third period of construction (A.D. 1000-1050) saw the flowering of 29SJ 627 to its final configuration. The prepared, continuous floor surface upon which rests the late horizontal masonry (central rooms) is nowhere more than 10 cm above the ramada surface of the second construction. Apparent from a glance at Figure 1.21 is the agglutinated manner of room construction which becomes more fragmented away from the site "core."

Table 1.22. Site 29SJ 627 dimensions.

| | <u>F1 #</u> | <u>Constr. period</u> | <u>Depth</u> | <u>N-S</u> | <u>E-W</u> | <u>Floor m²</u> |
|-----------------------------------|-------------|---------------------------|--------------|------------|------------|--------------------------------|
| Room 9 | 4 | 1 | 1.87-1.93 | 2.33 | 1.68 | 3.16 |
| Room 4 | 2 | 1 | 1.73 | 1.78 | 2.21 | 3.88 |
| Room 16 | 4,3 | 1 | - | 2.80 | 1.45 | 3.78 |
| Room 19 | 3,2 | 1 | - | 2.70 | 2.05 | 4.05 |
| Room 22 | 2 | 1 | - | 2.70 | 1.40 | *3.53-3.78 |
| Ramada 5 | 2 | 1 | 1.28 | 3.42 | 3.30-3.40 | 11.30-11.63 |
| Ramada 8/3 | 3,2 | 1 | 1.43 | 5.57 | 3.53 | 19.66 |
| Ramada 10/15 | 2 | 1 | - | *5.9-6.0 | 3.4-3.5 | *20.0-21.0 |
| Ramada 6/7 | 4,3 | 1.5 | - | 5.40 | 2.77 | 18.30 |
| Ramada 11 | 5,4,3 | 1.5 | - | 2.30 | 1.80 | *4.14 |
| Ramada 23 | 1 | 1 | - | 4.25 | 2.36 | *10.00 |
| Room 1 | 2 | 2 | - | *2.20 | *1.72 | *3.80 |
| Room 2 | 2,3 | 2 | - | *2.30 | *2.30 | *5.17 |
| Room 4 | 1 | 2/3? | - | 2.32 | 1.85 | 4.43 |
| Room 9 | 3 | 2 | - | *2.90 | *1.88 | *5.45 |
| Room 16 | 2 | 2 | - | *2.70 | *1.40 | *3.78 |
| Room 19 | 1 | 2/3? | - | 2.40 | 1.53 | 4.18 |
| Room 22 | 1 | 2/3? | - | *3.10 | *2.00 | *3.93 |
| Ramdas 11, 6,7,8,5, 3,10,15 | 1A,2 | 2 | - | *22.00 | *3.50 | *77.00 |

* Approximate.

Table 1.22 continued.

| | <u>Fl #</u> | <u>Constr. period</u> | <u>Depth</u> | <u>N-S</u> | <u>E-W</u> | <u>Floor m²</u> |
|--------------|-------------|---------------------------|--------------|------------|------------|--------------------------------|
| Room 1 | 1 | 3 | - | 2.18 | 2.45 | *5.33 |
| Room 2 | 1 | 3 | - | 2.40 | 2.23 | 5.73 |
| Room 9 | 2 | 3 | - | 2.68 | 2.00 | 5.91 |
| Room 16 | 1 | 3 | - | 2.84 | 1.90 | 5.13 |
| Room 11 | 2 | 3 | - | 2.35 | 2.00 | 4.89 |
| Room 6 | 2 | 3 | - | 2.19 | 2.64 | 5.78 |
| Room 7 | 1 | 3 | - | 2.10 | 2.85 | 6.00 |
| Room 5 | 1 | 3 | - | 2.70 | 3.06 | 8.09 |
| Room 8 | 1 | 3 | - | 2.98 | 2.86 | 8.66 |
| Room 3 | 1 | 3 | - | 2.78 | 2.65 | 7.50 |
| Room 10 | 1 | 3 | - | 2.76 | 2.16 | 6.16 |
| Room 15 | 1 | 3 | - | 3.04 | 1.77 | 5.61 |
| Room 20 | 1 | 3 | 0.20-0.30 | *3.10 | *2.50 | 5.41 |
| Room 17/18 | 1 | 3 | - | 7.61 | 1.85 | 14.29 |
| Room 14 | 1 | 3 | - | 2.94 | 2.43 | 7.00 |
| Room 12 | 1 | 3 | - | 2.96 | 2.23 | 7.01 |
| Room 6 | 1 | 3+ | - | 2.10 | 2.55 | 5.34 |
| Room 11 | 1 | 3+ | - | *2.30 | *2.05 | *4.71 |
| Trash Mound | | 1-3 | 0.45-0.60 | 30.00 | 35.00 | 1050.00 |
| general site | | 1-3+ | - | 38.00 | 54.00 | 2052.00 |

* Approximate.

Table 1.22 continued

| | <u>Constr.</u> <u>period</u> | <u>Width</u> <u>bench</u> | <u>m² behind</u> <u>wings</u> | <u>Depth</u> | <u>N-S</u> | <u>E-W</u> | <u>Floor</u> <u>m²</u> |
|---------------------------|---------------------------------|------------------------------|---|--------------|------------|------------|--------------------------------------|
| Pithouse B | 1 | | | - | 4.49 | 2.73 | |
| Pithouse A antechamber | 1 | | | 0.56-0.63 | 2.10 | 2.30 | 3.80 |
| Pithouse C | 1 | 0.35 | 2.25 | 2.49 | 4.22 | 4.40 | 17.19 |
| Pit Structure F | 2 | | | 3.50 | 3.90 | 4.00 | 12.73 |
| Kiva D | 3 | | | 1.79 | 3.65 | 3.40 | 9.82 |
| Kiva G | 3 | | | 2.10 | 3.60 | 3.65 | 10.36 |
| Kiva E | 3+ | 0.10-0.16 | | 2.22 | 3.46 | 3.53 | 9.92 |

Units or "suites" are discernible by similarities in construction. Rooms 1, 2, 6, 7, and 11 form the southern unit. Rooms 5 and 9 form a central pair. Rooms 4, 5, 16, and 3 make up another suite, possibly linked with 5 and 9. Similar relationships are not as clear for rooms north of 16 and 3. Rooms 17/18, 20, and 19 all contain multiple mealing bins suggestive of communal grinding rooms. Room 7 may have had two bins but these activities appear to be more limited in the central set of rooms. Truell notes the increase in the number of mealing bins at 29SJ 627 through time, as well as a corresponding drop in general floor pits, despite the projected transfer of these features and associated activities to living rooms from the earlier pithouses where they originally occur. She suggests that this trend may represent a decrease in the intensity of occupation during the third period. It is apparent, from the nature of kiva construction, that habitation has now been transferred to the surface rooms. Like the rooms, kiva construction was also discontinuous with Kiva E apparently the last constructed. This lack of continuity in kiva construction does not preclude the staggered abandonment and continued use of earlier, subsequently obliterated, pit structures.

The multiplicity of floors both within and between rooms is too complex to outline here, but the highest floors encountered were located in rooms 6 and 11 just west of Kiva E. Floors of the second construction period (not always "floor 2") were of a distinctive tan plaster in contrast to the gray clay used to floor earlier and later construction episodes. High floors in rooms near Kiva E were totally indistinct. Although Room 6 contained a shallow firepit, floors high in the fill were usually recognized first by the presence of late vessels. These upper floors, suffering the most damage, may have also been the most ephemeral. Certainly the dearth of standing walls above these last floors strongly suggests that the architecture of the very last occupation at 29SJ 627 was the most truncated in terms of archaeological visibility. Ceramics from Kiva E and several of the northern rooms attest to a site occupation, without major discernible reconstruction, until the mid-1100s. Distribution of these ceramics again suggests that the core construction units of the site evidenced the last occupation while peripheral rooms fell into disuse except as trash dumps.

Finally, it is precisely the integrity of discrete rooms suites in concert with three coeval pit "dwellings" that allowed Truell to postulate the occupation of 29SJ 627 by three to four families, probably numbering no greater than 20 to 25 people at one time, throughout the site's use. Following the initial burst of construction, which may represent indigenous population growth, occupation at 29SJ 627 apparently remained relatively stable, if not completely continuous, for the next 250 years.

SITE 29SJ 633

The excavation of 29SJ 633 represented the final efforts by the Chaco

Center to investigate village archaeology and development through time in Chaco Canyon. The site was selected to complement and complete the sequence of development under study in the small sites of Marcia's Rincon. Marcia Truell and LouAnn Jacobson searched for walls, trenched, tested, and finally, excavated one and a half rooms of an estimated 15-room site (Figure 1.22). Three kivas, none excavated, were indicated by wall clearing, trenching, and testing. Site 29SJ 633 is located on the tip of the northern flanking ridge of Marcia's Rincon (Truell 1979). Much of the work at this site involved a cooperative venture with the Division of Remote Sensing, however, the results and scope of those endeavors are not considered in this summarization of the excavated rooms.

Truell and Jacobson excavated a living room and half of an associated storage room in the center of the roomblock. The results of this limited excavation, although in many ways ambiguous, allowed Truell tentatively to identify some aspects of village development and use through the abandonment of Chaco Canyon in the early thirteenth century. Two distinct components were evident; a lower floor suggested a mid-1100s construction and an upper floor associated with a later Mesa Verde phase reoccupation. An extensive trash mound to the east of the roomblock strongly suggested a Pueblo II occupation (abundant Red Mesa Black-on-white), a conclusion unsupported by evidence from the excavated portions.

Both Room 7 and the excavated half of Room 8 had similar depositional histories. Above Floor 1 periodic episodes of trash deposition were capped by structural rubble and surface sands. Burials were found on both floors--two infants in Room 8 and an infant and an adult male in Room 7. Infants were interred in subfloor crypts while the adult (flexed) was in the fill above the floor in the northeast corner. Upper trash and all burials were associated with Mesa Verde, Crumbled House, and McElmo Black-on-white the latest ceramic assemblage in the prehistory of the Chacoan Anasazi. A discussion and comparative analysis involving this late ceramic assemblage are more fully treated elsewhere (Toll et al. 1980).

Two floors were encountered in each of the rooms (Figures 1.22-25). Room 8, except for burial pits was essentially featureless (Figure 1.25). Room 7, however, contained a "firepit," floor burns, a large corner storage bin, and miscellaneous floor features indicative of a living room. Although similar features were present on both upper and lower floors in Room 7, the degree of labor investment and use was markedly different (Figures 1.23, 1.24). Construction and use of the large storage bin in the northwest corner and a formal plastered central firepit are different from features on the upper floor. Ceramics and articulation with the lower floor suggest the storage bin was built and used exclusively with the primary occupation. A formal investment in feature construction is again indicated by the well-plastered, extensively burned firepit on the lower floor when compared with the shallow, barely oxidized depression on the upper floor--euphemistically designated as a firepit. The distinctness of the two occupational components is suggested by two archaeomagnetic samples (Table 1.23) dating approximately 70 years apart, and by the dichotomy of floor associated ceramics which strongly suggest both a hiatus and a reoccupation. Gallup and Mesa Verde Black-on-white assem-

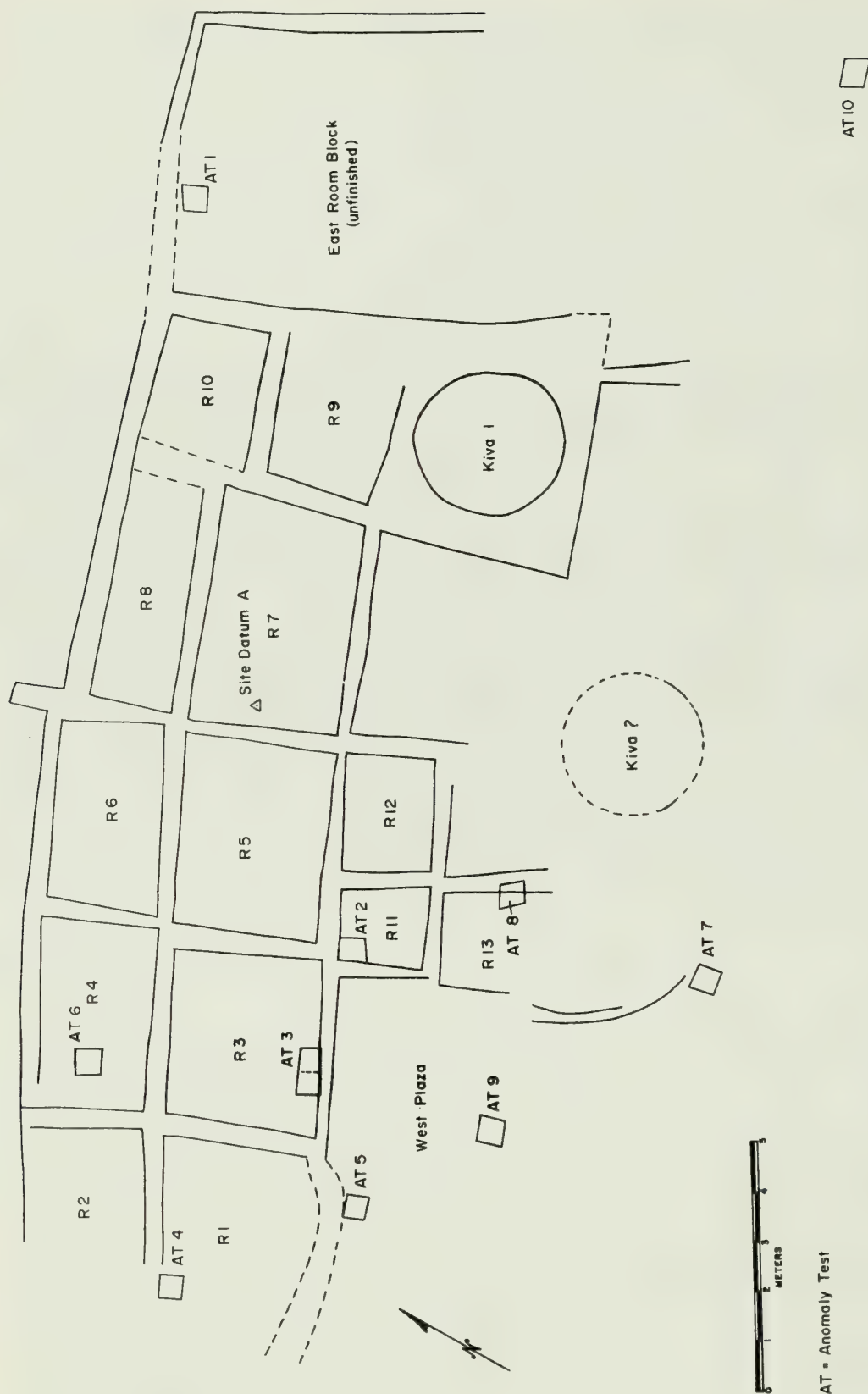


Figure 1.22. Site 29SJ 633.

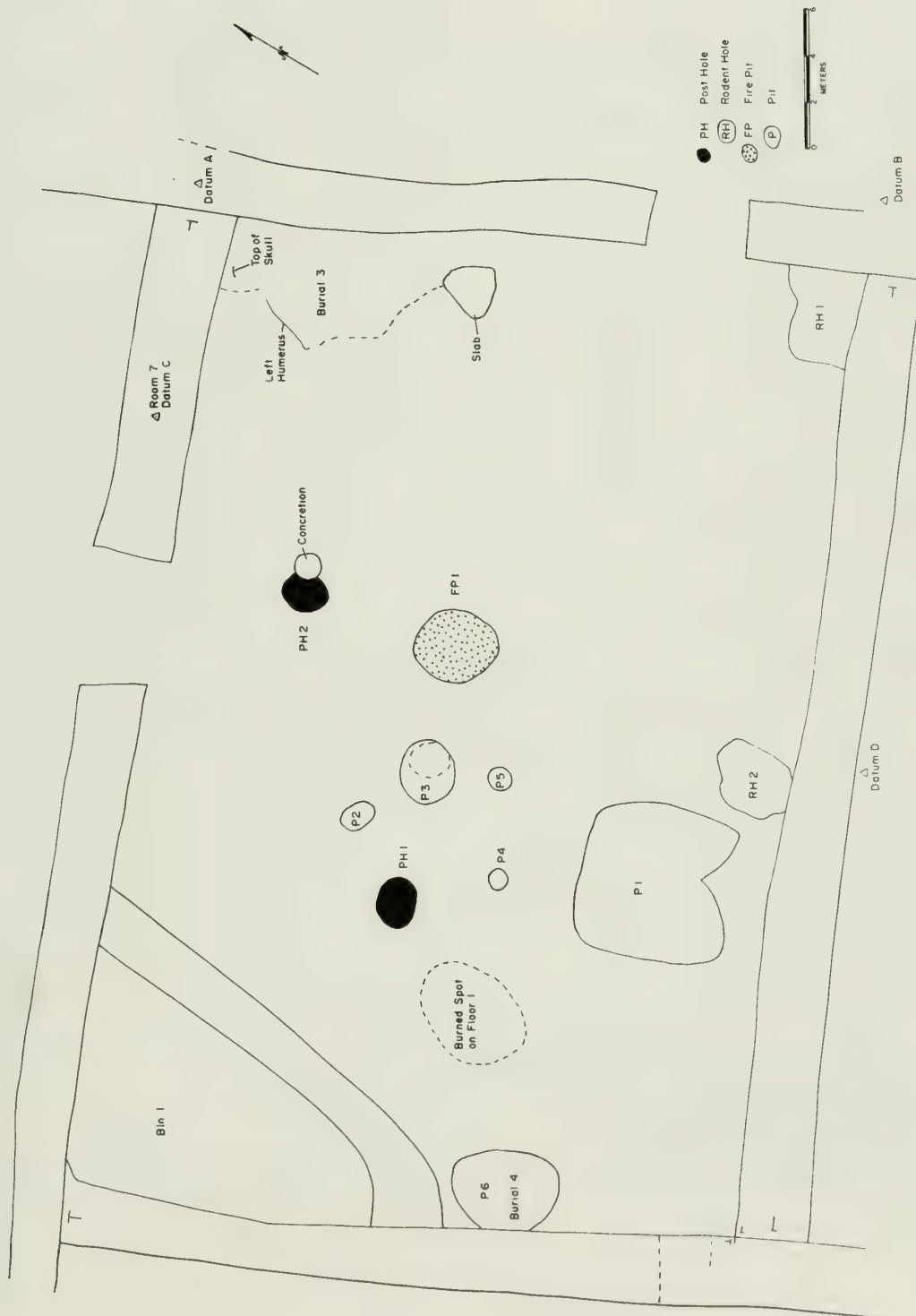


Figure 1.23. Site 29SJ 633, detail, Room 7, floor 1.



Figure 1.24. Site 29SJ 633, detail, Room 7, floor 2.

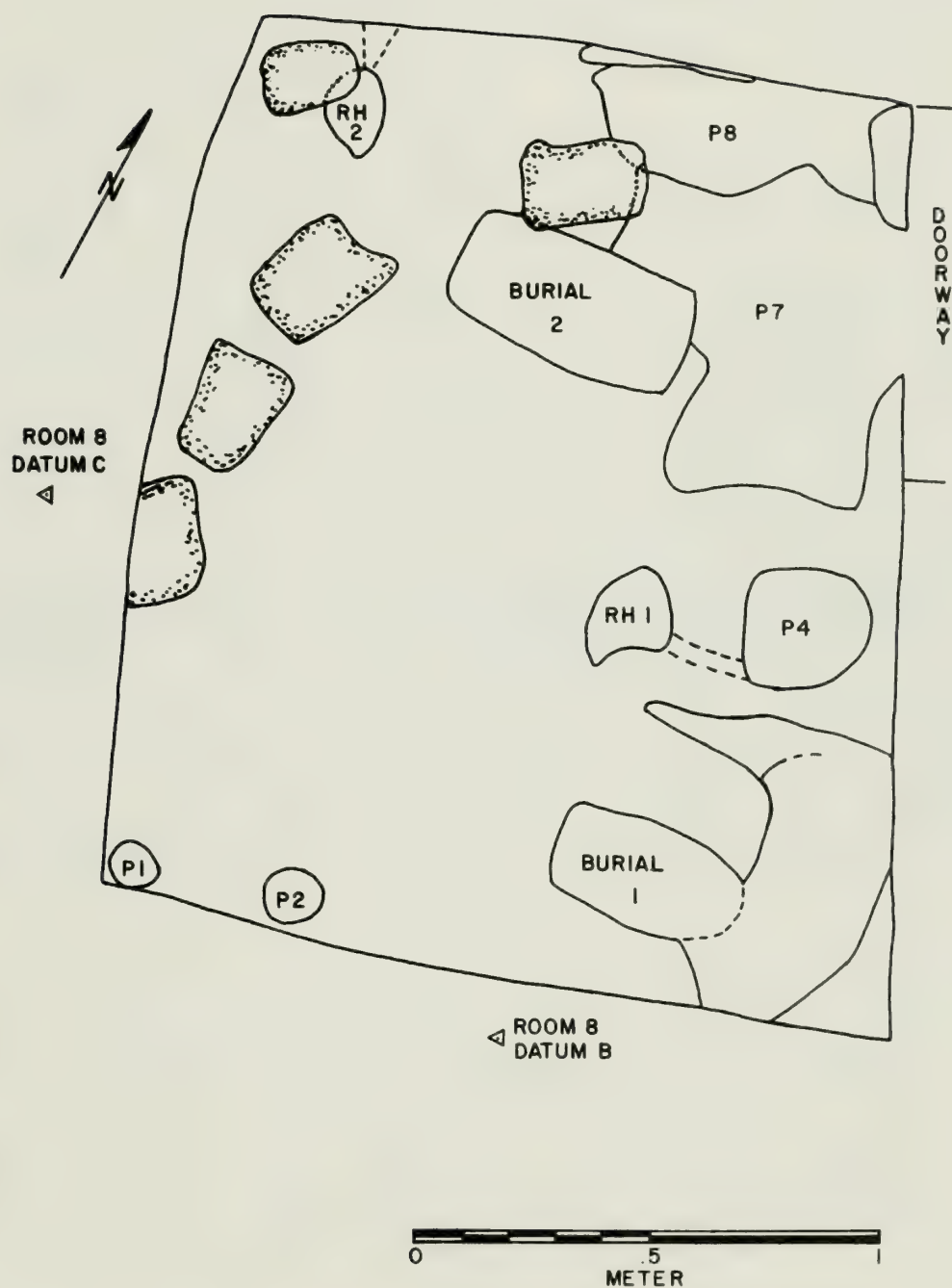


Figure 1.25. Site 29SJ 633, detail, Room 8, floor 1.

Table 1.23. Site 29SJ633 dimensions and dates.

| | <u>N-S</u> | <u>E-W</u> | <u>Floor m²</u> |
|--------------|------------|------------|--------------------------------|
| Room 7 | 2.74-3.00 | 4.22 | 12.11 |
| 8 (E) | 1.75 | 4.50 | 7.88 |
| Roomblock | 20.00 | 35.00 | 700.00 |
| Trash Mound | 38.00 | 28.00 | 1064.00 |
| general site | 38.00 | 115.00 | 4370.00 |

Archaeomagnetic dates:

| | | | |
|----------|------------------------|------|---------------------|
| ESO 1649 | Room 8 fl 1 floor burn | A.D. | na |
| ESO 1672 | Room 7 fl 1 firepit 1 | | 1250 ⁺²⁸ |
| ESO 1676 | Room 7 fl 2 firepit 1 | | 1180-1190* |

* Estimated.

blages were associated with the lower and upper floors respectively. The association of lower floors, initial foundations, and Gallup complex ceramics with native ridge soils indicates that 29SJ 633 was at least partially constructed in the 1100s.

Truell cautiously interprets the modicum of exposed architecture as evidence of continuous village development (as revealed in adjacent sites in the rincon), influenced by town construction. Evident at 29SJ 633 is the continued organization of rooms into suites, i.e., a larger living room interconnected with and backed by two smaller storage rooms. While the living room is exceptionally large (3 to 5 times larger than living space in nearby 29SJ 627 and 29SJ 629 and comparable to some rooms in Bonito phase "towns"), the ratio of living room floor space to storage room floor area is comparable to that developed in earlier sites (storage rooms are 67 percent of living floor areas). Continuous pored wall foundations suggest roomblock planning with subsequent construction. While the floor of Room 8 was considerably higher than that of Room 7, wall bonding indicated storage rooms were also constructed as a unit with the living rooms. The mixed masonry of soft, irregular and harder, tabular sandstone (often of reused ground stone) suggests extensive scavenging and expedient use of readily available material was practiced at the expense of quarry labors. This may reflect a construction group on a smaller scale, unable to muster the labor investment required to select, quarry, and construct the massive, relatively homogeneous masonry walls found in the towns. A vent, made by remodeling a sealed door in the west wall of Room 7, is an unusual feature in a village, indeed, one more commonly found in towns. Truell cites other isolated instances of architectural features associated with towns that appear in villages near Casa Rinconada, but are executed, as those at 29SJ 633, in a less extensive manner.

The differences in ceramic assemblages, burial patterns, and labor investment in floor features encourage Truell to postulate that 29SJ 633 was sequentially occupied by two different groups of people. Room 7 may have seen less extensive use as a living room in the final occupation, but certainly saw plenty of subsequent use as a trash receptacle and burial location, indicating a continued occupation of the site. Ceramic assemblages and correlations of stratigraphy with original architecture made possible a brief discussion based on a combination of a long-standing village architectural tradition apparently influenced and modified by innovations and/or improvements codified in town construction.

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Attachment 1

Survey Forms

104 Small Sites

Site no. 29SJ 423 806== NMAC 802== Type Pueblo, large shrine 832==
 Names _____ 830== _____ 930== Recorded by Hayes, A. 818==
 Old nos. Bc 422, LA 40423, SARG 10,325-326 906== Owner NPS 902==
 Locus T. 21N R. 11W Sec. 3 NW,SW,SW Qtr. 812== Elev. 6360' 824==
475 m /W. and 351 ° to Peñasco Blanco
850 m /W. and 52 ° to "Indian Ruins" E bank of Chaco, See 3 (known points)
On top of mesa on long, narrow potrero 813==
 Drain. Chaco Wash via the tributaries on either side of Peñasco Blanco 810==
 Landform Mesa, ridge 814== Exp. E 822== Slope 14% 826==
 Cover Grass 834== Water Seep 831==
 Soil Loess 836== Size 80 x 40 m 833== Depth 0.5 m 837==
 Descript. 1 PIII shrine rooms, kivas, 5-9 pithouses, 30 cists, 1 great kiva. All structures
lined with standing slabs. Refuse scattered. 875==
 Condition Stable, partially excavated 863== Photos NEME 3031 860==
 Specimens Sherds, debitage, 3 possible turquoise, shale pendant 870==
 Remarks Steel stake. Extensive site with quantity of sherds and chips. Some flakes on
periphery, may be Archaic. Probably BMIII. Auger hole in pithouse 20 m NE of stake
went through 54 cm. cc. and sand to rock bottom. Hole outside 4 cm. Another in pithouse
31 m NE of stake -- 33 cm of cc and sand to rock. Sketch drawn by Hayes. Partially
excavated by Tom Windes 1973.
 835==

Lab notes:

References:

Kin Klizhin QuadAcc. file 11, Chaco C.

839==

Period BMIII, PIII 842==

Phase _____ 840==

Dates: from 844== to 846==

| | | | | | | |
|------------|---|-------|----------------------|-------|-------------------------------------|--------------------|
| Site no. | 29SJ 299 | 806== | NMAC 802== | Type | Pueblo | 832== |
| Names | | 830== | | 930== | Recorded by Windes, T. Stanford, D. | 818== |
| Old nos. | LA 40299, SARG 10,263-10,265 | 906== | Owner | NPS | | 902== |
| Locus | I. 21N R. 10W Sec. 28, SW,SW, NW Qtr. 812== Elev. 6200' | | | | | 824== |
| | 4300 m N/ and 253 ° to Elev. 6664', Sec. 36 | | | | | |
| | 500 m N/ and 173 ° to High point - Fajada Butte | | | | (known points) | |
| | On one of several ridges to N of Fajada Butte and S of Chaco Wash | | | | | 813== |
| Drain. | Chaco Wash, above Fajada Wash | | | | | 810== |
| Landform | Bottom ridge | 814== | Exp. S? | 822== | Slope W, 15% | 826== |
| Cover | Grass (sparse), Brush | 834== | Water | | | 831== |
| Soil | Residual loess | 836== | Size 120 m(E-W)x30 m | 833== | Depth 0.3 m+ | 837== |
| Descript. | See below** rooms, kivas, 1 great kiva? | | | | | |
| | Slab base with probable spall/adobe/jacal walls. Refuse scattered. | | | | | 875== |
| Condition | Stable | 863== | Photos | NEME | | 860== |
| Specimens | Sherds, debitage, 1 drill and 1 pendant (FS 365) | | | | | 870== |
| Remarks | Steel stake in slab room. Many B/W sherds intrusive from nearby sites. | | | | | |
| | BMIII-PI-early PII site of slab rooms oriented E-W on ridge. Little trash and no obvious "kiva." Auger hole 6 mm ESE of stake went through 1.47 cm of clean blown sand without reaching sterile ground. In surrounding area residual shaly clay reached at 0.17 m. Another in wide depression at E end of house (55 m E of stake), 1.43 m of cc impregnated sand, no bottom (great kiva?) | | | | | 835== |
| Lab notes: | | | | | References: | |
| | Pueblo II sherds; drift from Site 29SJ 298 largely. Largely excavated in 1973-1974. | | | | Pueblo Bonito Quad | |
| | ** 4 pithouses | | | | Ass. file #10 | |
| | 15 rooms | | | | | |
| | 1 intrusive PII kiva | | | | | |
| | no great kiva | | | | | |
| | 1971 | | | | | |
| | | | | | | 839== |
| | | | | | Period | BMIII-PI-E P1842== |
| | | | | | Phase | 840== |
| | | | | | Dates: from | 844== to 846== |

| | | | | | | |
|-----------|---|--------------------|---------------------|--------|-----------------------|-------|
| Site no. | 29SJ 628 | 806== | NMAC 802== | Type | Pueblo | 832== |
| Names | | 830== | | 930== | Recorded by Hayes, A. | 818== |
| Old nos. | LA 40628, SARG 10,502 | 906== | Owner | NPS | | 902== |
| Locus | T. 21N R. 10W | Sec. 29 NW, NE, NW | Qtr. 812== | Elev. | 6220' | 824== |
| | 1950 m <i>W.</i> and | 132 ° to | Fajada Butte | | | |
| | 550 m | 105 to | Chaco Well, Sec. 29 | | | |
| | 1540 m <i>W.</i> and | 87 ° to | Mon. Water tank | | (known points) | |
| | In valley bottom between two ridges, S one ridge from Great Sand Dune 6280', | 813== | | | | |
| | Sec. 20 | | | | | |
| Drain. | Chaco Wash | | | | | 810== |
| Landform | Bottom, slope | 814== | Exp. E | 822== | Slope E, 6% | 826== |
| Cover | Grass | | 834== | Water | | 831== |
| | | | 120 x 100 | | | |
| Soil | Alluvium | 836== | Size 15m x 13m | 833== | Depth .3 m | 837== |
| Descript. | 2 cists (slabrooms, kivas, | | | | | |
| | lined | | | | | |
| | Slabs and scattered spalls | | | | | 875== |
| Condition | Stable | | 863== | Photos | NEME 3336 | 860== |
| Specimens | Sherds, debitage, knife (FS 45), bead (FS 133), stone scraper (FS 131), | 870== | | | | |
| | stone scraper (FS 132), bead (FS 33), Jade bead (FS 516) | | | | | |
| Remarks | Flat area E of cists may be location of pithouse-BMIII sherds scattered for | | | | | |
| | 20 m downslope. Intrusive sherds drifted from upslope into site from later PI-PIII | | | | | |
| | sites 29SJ 629 and 29SJ 630. Excavated, 1973, by Marcia Truell, 6 pithouses, 6 cists. | | | | | |
| | Steel stake next to cists. | | | | | |
| | | | | | | 835== |

Lab notes:

References:

Pueblo Bonito Quad

Acc. file 8

839 ==

Period BMIII-PI 842==

Phase 840 ==

NMAC-1

Dates: from 844== to 846==

10 May 72

Site no. 29SJ 1659 806== NMAC 802== Type Pueblo, hogan, storage 832==
 Names Shabik'eschee Village 830== Recorded by Windes, T. 818==
 Old nos. Bc 256, LA 530 906== Owner NPS/Navajo Tribe 902==
 Locus T. 21N R. 10W Sec. 25, SE, SE, SW Qtr. 812== Elev. 6380' 824==
ft. and ° to Marked "Shabik'eschee" on USGS map
ft. and ° to (known points)
 813==
 Drain. Chaco Wash, 7th and 8th left tributaries above Fajada Wash 810==
 Landform Mesa, bench 814== Exp. SE 822== Slope N, 20% 826==
 Cover Grass 834== Water 831==
 Soil Loess 836== Size 833== Depth 837==
 Descript. rooms, kivas, 18 pithouses, 1 small court, 1 great kiva, 48
storage cists, 2 hogans, 2 Navajo storage rooms. Simple masonry, slabs, spalls. 875==
 Condition Partially excavated by FHH Roberts 1927 863== Photos None 860==
 Specimens sherds and debitage (2 bags), 1 bag of naturally occurring pebbles, 870==
trough metate left and manos, turquoise frags (FS 567), 4 points (FS 623)
 Remarks Stake in great kiva. At least one pithouse observed with simple masonry walls.
SEE BAE report on excavation (BAE #92, 1929). Two bags of pebbles collected off site
for lab material. Site sketch map of 1655 for Navajo structures on this site.
See site 29SJ 1983 for additional information. The two hogans, 2 Navajo storage
rooms returned to site 29SJ 1655 in June 1982.
 835==

Lab notes:

Dated 734 + 757 by GP (near reading of those dates are 327vv to 581++vv.
 Specimens secured in '73 date from 242vv to 537 vv.

References:

Sarg. Ranch Quad
Roberts 1929
'73 field notes Chaco
Center
Vivian & Mathews '74

839==

Period BMI-PI 842==

Phase 840==

Dates: from 844== to 846==

108 Small Sites

| | | | | | | | |
|-------------|--|-------------------|----------------|---------------------------|-------------|------------|-------------|
| Site no. | 29SJ 721 | 806== | NMAC | 802== | Type | Pueblo | 832== |
| Names | | 830== | | 930== | Recorded by | Winder, T. | 818== |
| Old nos. | Bc 164, LA 40721, SARG 10,572-10,579 | 806== | Owner | NPS | | | 902== |
| Locus | T. 21N R. 10W | Sec. 18, SE,SW,SE | Qtr. 812== | Elev. | 6180' | | 824== |
| | ft. and | ° to | | | | | |
| | ft. and | ° to | (known points) | | | | |
| | 20 m south of ruin symbol in S 18, SE,SW,SE on map | | | | | | 813== |
| Drain. | Chaco Wash, 1st left tributary above Werito's Wash | | | | | | 810== |
| Landform | bottom, ridge | 814== | Exp. | 822== | Slope | E 17% | 826== |
| Cover | Grass | 834== | Water | | | | 831== |
| Soil | Loess, residual | 836== | Size | 40m (N-S)x32 m | 833== | Depth | 0.3 m 837== |
| Descript. | rooms, kivas, 1-2 pithouses, 1 slab room (rectangular), 6 cists, 1 hearth, slabs, refuse scattered. | | | | | | 875== |
| Condition | stable | 863== | Photos | CHCA 1504, NEME 3452-3453 | | | 860== |
| Specimens | sherds and debitage. One trough mano fragment left. | | | | | | 870== |
| Remarks | Steel stake in slab room. BMIII site. One cist located within large slab structures, 3.3 m diam, possibly a pithouse. Excavated '73 by T. Winder. BMIII and PI pithouses, and PIII kiva. | | | | | | |
| | | | | | | | 835== |
| Lab notes: | References: | | | | | | |
| 2 pithouses | Pueblo Bonito Quad | | | | | | |
| 1 PIII kiva | Field notes, Acc. 13 | | | | | | |
| 6 cists | | | | | | | |
| 1 PI room | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | 839== | | | | | | |
| | Period BMIII-PI, PIII 842== | | | | | | |
| | Phase 840== | | | | | | |
| | Dates: from 844== to 846== | | | | | | |

| | | | | | | | |
|-------------|---|------------|-------------|---------------------------|-------------|----------------|--------|
| Site no. | 29SJ 724 | 806== | NMAC | 802== | Type | Pueblo | 832== |
| Names | | 830== | | 930== | Recorded by | Wendes, T. | 818== |
| Old nos. | Bc 159, Bc 161, Bc 162, SARG 10, 576 LA 40724 | 906== | Owner | NPS | | | 902== |
| Locus | T. 21N R. 10W Sec. 18, SW, SW, SE | Qtr. 812== | Elev. | 6180' | | | 824== |
| | 875 m N/and | 65 ° to | Hungo Pavi | | | | |
| | 2000 m N/and | 317 ° to | Chetro Ketl | | | (known points) | |
| | On the 2nd low ridge spur to east of the mouth of Werito's Rincon | | | | | | 813== |
| Drain. | Chaco Wash, 1st left tributary above Werito's Wash | | | | | | 810== |
| Landform | bottom, ridge | 814== | Exp. | S | 822== | Slope | E, 15% |
| | | | | | | | 826== |
| Cover | Grass | 834== | Water | | | | 831== |
| Soil | Residual, dune, sand | 836== | Size | 150m x 45m | 833== | Depth | 0.3 m |
| | 22 SJBRUS* | | | | | | 837== |
| Descript. | 14-18+ rooms, 1-3 kivas, pithouses, 1 cist. Slab foundation with adobe/jacal/spall walls. Refuse to SE. | | | | | | 875== |
| Condition | Good | 863== | Photos | CHCA 1499-1502, NEME 3456 | | | 860== |
| Specimens | Sherds and debitage. | | | | | | 870== |
| Remarks | Steel stake in NE rooms. Three sets of PI concentric (slightly) rows of rooms beautifully outlined by the slab foundations 62 m and 30 m apart. Possible pithouse/kiva in front of each and (probably not) great kiva (depression) between and to the front of both (may be drainage only). Most rooms probably storage although SW set has at least one or more larger (living?) rooms to front of storage rooms. See site 29SJ 648 for 2-3 additional PI slab rooms near head of ridge. | | | | | | 835== |
| Lab notes: | Excavated '74 by Windes and Judge central roomblock = 10 rooms 1 ramada 1 pithouse | | | | | | |
| References: | Pueblo Bonito Quad Acc. file 24 | | | | | | |
| | | | | | | | 839== |
| | | | Period | PI | | | 842== |
| | | | Phase | | | | 840== |
| 2 June 1972 | | | Dates: from | 844== | to | | 846== |
| NMAC-1 | | | | | | | |

110 Small Sites

| | | | | | | | |
|-------------|--|---------------------|---------------------|-------------------|-------------|--------------------|-------------|
| Site no. | 29SJ 629 | 806== | NMAC | 802== | Type | Pueblo | 832== |
| Names | | 830== | | 930== | Recorded by | Wendes, T. | 818== |
| Old nos. | LA 40629, SARG 10,503-10,504 | 906== | Owner | NPS | | | 902== |
| Locus | T. 21N R. 10W | Sec. 29, NW, NE, NW | Qtr. | 812== | Elev. | 6240' | 824== |
| | 1950 m ff. and | 132 ° to | Fajada Butte | | | | |
| | 1540 m | 87 | Mon. water tank | | | | |
| | 550 m ff./and | 105 ° to | Chaco well, Sec. 29 | | | (known points) | |
| | In valley between two ridges, S one ridge from Great sand dune 6280', Sec. 20 | | | | | | 813== |
| Drain. | Chaco Wash | | | | | | 810== |
| Landform | Bottom, slope | 814== | Exp. | E | 822== | Slope SE, 6% | 826== |
| Cover | Grass | 834== | Water | | | | 831== |
| Soil | Alluvium, residual | 836== | Size | 25 m x 11 m (N-S) | 833== | Depth 0.3 m | 837== |
| Descript. | 6+ rooms, 1 kivas, trash mound | | | | | | |
| | Simple masonry. Refuse to E. | | | | | | 875== |
| Condition | Stable | 863== | Photos | NEME 3337 | | | 860== |
| Specimens | Sherds, debitage, points(FS 46), point (FS 713), mano frags left, chopper (FS 49), | | | | | | 870== |
| Remarks | PI ruin-early PII ruin with several wall outlines. Ruin is L-shaped with curved wall at angle of "1". Kiva east of lower "L" and south of upper. Probably some sherds intrusive from 29SJ 630. Steel stake by room wall. | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | 835== |
| Lab notes: | Excavated by T. Windes 1975 and 1976 | | | | | | References: |
| | 9 rooms | | | | | Pueblo Bonito Quad | |
| | 1 kiva | | | | | | |
| | 2 pithouses | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | 839== |
| | PII and late PIII | | Period | PII | | 842== | |
| | | | | P I-late PIII | | | |
| | | | Phase | | | 840== | |
| 10 May 1972 | | | Dates: from | 844== | to | 846== | |
| NMAC-1 | | | | | | | |

Site no. 29SJ 1360 806== NMAC 802== Type Pueblo 832==
 Names LA 41360 830== 930== Recorded by Windes, T. 818==
 Old nos. in part 29SJ298 (from 1971), Bc240 906== Owner NPS 902==
 Locus I. 21N R. 10W Sec. 28, SE,NW,SW Qtr. 812== Elev. 6220' 824==
1000 m NW and 5 ° to Hardin's (Western NPS residence)
2200 m NW and 82 ° to Chacra Mesa Point, cliff face E of "27" and Sec(known points)
27, 6360'
On ridge off NE front of Fajada Butte--Canyon slope 813==
 Drain. Chaco Wash (S. bank) between Fajada Wash and 1st tributary of Chaco 810==
 Landform Bottom, ridge 814== Exp. SE 822== Slope E, 5% 826==
 Cover Brush 834== Water 831==
 Soil Residual, loess 836== Size 4m x 125 m (E-W) 833== Depth 1 m 837==
 Descript. 20+ rooms, 1 kiva, 2 kivas, 1 pithouse, 4 unexcavated pitstructures (PJM 1982)
Slabs and spalls, deep refuse to SE 875==
 Condition Vandalized, stable 863== Photos CHCE 11767, CHCA 1535 860==
 Specimens Sherds, debitage 870==
 Remarks Steel stake next to room slabs, large PI crescent shaped (E-W) ruin at high end
of ridges. Slab rooms easily visible. Trash mound badly potted in places. Slabs from
two pithouses partly visible. Possibly 4? other rooms to S. on canyon slope about 25 m
away. Auger hole 4.5 m in front of W end of house. 1.5 m of rich trash w/c bottom.
Auger hole at S side of pithouse at E end of house; sterile at 0.5 m. Auger hole on N
side of same; blow sand with c.c. increasing toward bottom at 1.63 m. 835==

Lab notes:

References:

Overlaps with site 29SJ1278. Pithouse to south of main block. Long occupation.

Sherd contamination from nearby sites.

Excavated 1974, Morrison. Report by McKenna (1981, 1983- Chaco Center manuscript, thesis).

Pueblo Bonito Quad

Acc. file 15

839==

late PI, late PII Period PI-early PII 842==

Phase 840==

112 Small Sites

| | | | | | | | |
|------------|---|---------------------------|--------|--------------|-------------|----------------|---------------------|
| Site no. | 29SJ 627 | 806== | NMAC | 802== | Type | Pueblo | 832== |
| Names | | 830== | | 930== | Recorded by | Windes, T. | 818== |
| Old nos. | LA 40627, SARG 10,500-10,501 | 906== | Owner | NPS | | | 902== |
| Locus | T. 21N R. 10W Sec. 29, NW,NE,NW | Qtr. 812== | Elev. | 6200' | | | 824== |
| | 1900 m/W. and | 135° to Fajada | | | | | |
| | 1420 m | 86 to Monument water tank | | | | | |
| | 1180 m/W. and | 50° to Kin Nahasbas | | | | (known points) | |
| | In valley between two ridges, S one ridge of large great sand dune, 6280' | | | | | | 813== |
| Drain. | Chaco Wash | | | | | | 810== |
| Landform | Bottom, slope | 814== | Exp. | E | 822== | Slope | SE 10% |
| | | | | | | | 826== |
| Cover | Grass | 834== | Water | | | | 831== |
| Soil | Alluvium, residual | 836== | Size | 50+ m x 28 m | 833== | Depth | 0.6 m |
| | | | | | | | 837== |
| Descript. | 3+ rooms, 3 kivas, 1 trash mound, 3 pithouses, refuse to east | | | | | | |
| | Slab-based jacal and/or adobe. | | | | | | |
| | | | | | | | 875== |
| Condition | Stable | 863== | Photos | NEME 3335 | | | 860== |
| Specimens | Sherds, debitage, chopper (FS), Point (FS), Polished stone and hammerstone (FS 48). | | | | | | 870== |
| Remarks | PI-PII room on slight rise on canyon slope between ridges. Has a large | | | | | | |
| | low trash mound in front downslope. Rm. and kiva oriented N-S with kiva to east and | | | | | | |
| | trash beyond kiva. Sherds intrusive from 29SJ 629 and 29SJ 630. Excavated in 1974 and | | | | | | |
| | 1975 by Marcia Truell (25 rooms, 4 pitstructures). | | | | | | |
| | Steel stake in rooms. | | | | | | |
| | | | | | | | 835== |
| Lab notes: | | | | | | | References: |
| | | | | | | | Pueblo Bonito Quad |
| | | | | | | | Acc. file 18 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | 839== |
| | PI, early PIII | | | | | | Period |
| | | | | | | | PI-early PII, 842== |
| | | | | | | | PIII |
| | | | | | | | Phase |
| | | | | | | | 840== |
| | Dates: from | | | | | | 844== to 846== |

| | | | | | | | |
|--|--|-------------------|------------|---------------------------|-----------|----------------|----------------------|
| Site no. | 29SJ 633 | 806== | NMAC | 802== | Type | Pueblo, hogan | 832== |
| Names | | 830== | | | Recorded | by Windes, T. | 818== |
| Old nos. | Bc 187, LA 40633, SARG 10,509 | 906== | Owner | NPS | | | 902== |
| Locus | T. 21N R. 10W | Sec. 20, SW,SE,SW | Qtr. 812== | Elev. | 6200' | | 824== |
| | 1050 m | N. and | 63 ° to | Kin Nahasbas | | | |
| | 1380 m | N. and | 94 ° to | Monument water tank | | (known points) | |
| | On ridge .3 miles N and W of Crownpoint 56 sign and Visitor's Center road junct. | | | | | | 813== |
| Drain. | Chaco Wash, 1st left tributary above Chaco-Gallo junction | | | | | | 810== |
| Landform | Bottom, ridge | 814== | Exp. | SE | 822== | Slope | E, 5% |
| | | | | | | | 826== |
| Cover | Grass | | 834== | Water | | | 831== |
| Soil | Loess, residual | 836== | Size | 76 m (E-W) x 50 m | 833== | Depth | 2 m |
| | | | | | | | 837== |
| Descript. | 12-14+ | rooms,2-3 | kivas, | 2 slab cists, | 1 hearth, | 1 hogan, | 1 wall |
| | Simple, compound, masonry (late). Slab, adobe and spalls=earlier component. | | | | | | 875== |
| | Late refuse to SE. | | | | | | |
| Condition | | 863== | Photos | NEME 3341-3342, CHCA 1580 | | | 860== |
| Specimens | Sherds, debitage, 1 whole, 9 trough metate frags left. 1 mano (trough metate (FS 60), pottery scoop frag (FS 64) | | | | | | 870== |
| Remarks | PII-PIII ruin overlaying an earlier PI-PII component. PII-PIII possible two-story | | | | | | |
| | in center roomblock. Several more recent structures on site possibly Navajo. Late | | | | | | |
| | roomblock (12-14 rooms) oriented NE-SW with two kivas and two rooms off to SE, and | | | | | | |
| | trash beyond that. Earlier trash and slab and spall concentration indicate earlier | | | | | | |
| | rooms of unknown number, at least several. Steel stake in highest part of mound in | | | | | | |
| | rooms. | | | | | | 835== |
| Lab notes: | | | | | | | References: |
| 1 ½ rooms dug by Truell in 1978. | | | | | | | Pueblo Bonito Quad |
| 1 kiva shallow tested | | | | | | | |
| Trash mound appeared to have been potted; evident | | | | | | | |
| when the site was tested (would not be surprised | | | | | | | |
| if Pepper's burial quest might not have hit here). | | | | | | | |
| Very good rich trash, depth not tested by Chaco | | | | | | | |
| Center. MT | | | | | | | |
| | | | | | | | 839== |
| | Period | | | | | | PI-PIII, Hist. 842== |
| | Phase | | | | | | 840== |
| Dates: from | 844== | to | 846== | | | | |

114 Small Sites

| | | | | | | | |
|------------|---|----------|--|--------------|-----------------------------|-----------------------|----------------|
| Site no. | 29SJ 1088 | 806== | NMAC | 802== | Type | Religious | 832== |
| Names | | 830== | | | 930== | Recorded by Cully, J. | 818== |
| Old nos. | Bc 428, LA 41088, LCS 10366 | 906== | Owner | NPS | | | 902== |
| Locus | T. 21N R. 11W | Sec. | 8, NE,NW,SE | Qtr. | 812== | Elev. | 6540' 824== |
| | 2230 m ft. and | 240 ° to | S high point, isolated shale hill, Sec. 18 SW,NW,SW,NE | | | | |
| | 1780 m ft. and | 11 ° to | above Padilla Well, Chaco Sec. 5 SW,SE,SE,NE 6100' | | | | |
| | | | rock protrusion cliff fence E of 2 nd trib. (known points) | | | | |
| | West tip of Mesa. | | | | | | 813== |
| Drain. | Padilla Wash and Chaco River | | | | | | 810== |
| Landform | Mesa, cliff edge | 814== | Exp. | E, open | 822== | Slope | 4-100% 826== |
| | top | | | | | | |
| Cover | Brush, grass, bare | | 834== | Water | | | 831== |
| Soil | Residual, loess | 836== | Size | 450 m x 80 m | 833== | Depth | 1.8 m 837== |
| Descript. | rooms, kivas, 1"medicine hogan"-- 13 cairns | | | | | | |
| | compound masonry. | | | | | | 875== |
| Condition | Stable | | 863== | Photos | CHCA 1586,1578 | | 860== |
| | | | | | S 14-30,31,32, 8-13-13/1088 | | |
| Specimens | 1 sherd (1972) | | | | | | 870== |
| Remarks | Steel stake in hogan, located on tip of mesa. The outer edges of the mesa have begun to pull away and the cairns are listing at front 20 degrees. The "Hogan" has a crack running through the center of it, and the walls have separated -- 1 m. They are still standing on both sides of the crack. This is not a fresh break as there are no fresh edges. Loess has accumulated, plants are growing, and some soil is established. Possibly two collapsed cairns to the north of the hogan. Eleven cairns along the | | | | | | |
| Lab Notes: | cliff to the S of the hogan (10 cairns are actually S of it). The largest cairn is about 1.8 m high and 1 m in diameter. The smallest | | | | | | 835== |
| | cairn is about 0.5 m high and 0.4 m in diameter. "Hogan" is about | | | | | | |
| | 7 m in diameter and the walls are about 1 m high. Large cairns | | | | | | |
| | are barrel shaped. All masonry is similar; immediately available | | | | | | |
| | dark colored, thin sandstone pieces, dry laid. Center of the | | | | | | |
| | cairns are filled with rocks. "Hogan" door opens to E. I tend to | | | | | | 839== |
| | agree with Ben Padilla; no Navajo would build this. (JDS) | | | | | | |
| | Resurvey by Schelberg 1974. Excavated in 1975; report by | | | | | | |
| | McKenna and Windes 1975. | | | | | | |
| | Period | | | | | | PII-PIII 842== |
| | Phase | | | | | | 840== |
| | Dates: from | | | | | | 844== to 846== |

NMAC-1

28 June 1972; 10 September 1974

Part II

A Summary of Small Site Architecture in Chaco Canyon, New Mexico

Marcia L. Truell

Acknowledgments

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Chapter One

Introduction

'Chaco est omnis dívísa in partés duás..'
Old Myth

The major concern of this report is to summarize the prominent architectural characteristics of excavated small prehistoric houses within Chaco Canyon proper. The time period considered is from the late A.D. 400s or early 500s through the middle to late 1200s, which includes the most extensive term of prehistoric Anasazi settlement. As originally outlined, this study was not only intended to synthesize formal changes and development in small site construction through time, incorporating information generated by recent Chaco Center excavations, but also to examine the soils, vegetation, and physiographic characteristics of the sites in areas that had been intensively investigated archaeologically. Since excavations by the Center and others had generally concentrated on dense small site clusters of long-term occupation, it was hoped that specific characteristics of these areas could be evaluated. Unfortunately time constraints prevented the completion of the originally planned synthesis.

TERMINOLOGY

As the reevaluation and redefinition of a number of familiar terms have been made, it is useful to discuss application of some of those in common use.

Small Site

Numerous comparisons have been made between the large (100-700 rooms), multistoried, preplanned, beautifully engineered and constructed pueblos

such as Pueblo Bonito and Chetro Ketl, and the small (3-4 to 30-35 rooms), modestly built, generally single-story houses, originally described as clustered along the south side of the canyon. (This room estimation excludes one- and two-room field houses.) Prior to the Chaco Center's investigations, these small Chaco sites had been characterized as a "series of amorphously arranged rooms" (Vivian 1970b:66), "totally lacking in regularity and planning" (Vivian 1970a:163,169), an assessment based largely on a group of small sites surrounding Casa Rinconada, excavated by the School of American Research and the University of New Mexico Field School during the 1930s and 1940s. Although there are obvious differences in scale and often in construction between the large and small sites within the canyon, it has recently become apparent that there is much more architectural variability and greater complexity in spatial arrangement in small houses throughout the Anasazi occupation of the canyon than was previously suspected (Truell 1981a).

Traditionally, these small sites have been referred to either as "small house ruins" (Amsden n.d.; Brand et al. 1937; Dutton 1938; Judd 1964; Kluckhohn and Reiter 1939) or "villages" (Grebinger 1978; Vivian 1970a, 1970b; Vivian and Mathews 1965), terms that had become interchangeable (Roberts 1929, Chaco Center Archives #2108). For the purposes of this report, "small site" has been used as opposed to "village," since there is a consensus among the Chaco Center staff that "village" has both historic and prehistoric connotations not appropriately applied to small houses within Chaco (Powers 1981:I-21).

It will be instructive to compare "town" and "village" terms at Chaco to the use of these terms in Central Mexico. The density of apparently contemporaneously occupied small houses throughout Chaco (Hayes 1981:33) does not parallel characterizations of Mesoamerican villages, which generally do not lie within even a mile of one another (Flannery 1976a:164). Further, the restricted size of many Chacoan sites indicates that many of them housed only one or two extended family units (possibly 5 - 10 people), which contrasts with the use of the term in various areas of Mexico by Blanton (1972), Flannery (1968:164), MacNeish (1969), Parsons (1971), and Sanders (1956:117), all of whom distinguished villages on the basis of a population in excess of 100 people. Flannery (1976a:164) has characterized villages as forming the large end of the continuum with hamlets (10-100 people [Blanton 1972]) at the opposite end. Some researchers believe that groups of villages in Chaco may have resembled a "nucleated village," which maintained small spatial separations between as many as four household units(?). "Dispersed Villages," as used by Parsons, seems to imply more spacing than is indicated by Chacoan examples, although the exact use of the term is unclear. Although there is little doubt that the inhabitants of small sites interacted with those of at least some of the other small and large sites in the canyon, the degree of autonomy in any of these areas remains unknown. It seems erroneous to conclude too much using only the proximity of these structures, since proximity may have little relevance to actual interchange. Yet, some believe, regardless of individual house boundaries, that site proximity and density indicate that the entire Anasazi settlement at Chaco could be considered a single interacting community (e.g., Lekson 1984), resembling Sanders' description of a "town"

(1956:117) in Central Mexico. The use of "town" in Chaco (referring to single large sites) again affords an unfortunate confusion.

There is little question that the term "village" as it has been established in Chaco does not correspond well to its use in Mesoamerica, without even considering contrasts with the traditional usage of the term in Old World contexts. In an effort to avoid further controversy, the non-specific term "small site" is used in this study.

It should be noted that a number of the houses with 30 to 35 rooms included in this group might not be considered "small" if removed from Chaco proper and placed elsewhere in the Anasazi region. This descriptive term only has meaning when applied specifically within the canyon where these sites are contrasted with large "town" or "great house" structures.

As will be apparent in the following discussion (Chapter Two), the chronological separations used in this report have been based on absolute dates where possible, but more of them have been placed relative to ceramic dominance. The architectural diversity within these periods is discussed below.

Hosta Butte Phase

The term "Hosta Butte Phase" has not been used in this report. This temporal division, coined by Harold S. Gladwin (1945) during his examination of sites located in and around the Red Mesa Valley (to the south and west of Chaco) was applied specifically to two excavated Pueblo II/III period sites--Tseh So (Bc 50) and Bc 51 in Chaco (Gladwin 1945:78-94). Gladwin devoted considerable space in his discussion of these sites to an attempted refutation of Hawley's argument (1937b:115) that they existed contemporaneously with the large classic Bonito phase structures after A.D. 1088. He concluded that timbers had been borrowed from Hosta Butte phase sites for reuse in the large pueblos, and this practice had created a false impression of contemporaneity among these types of sites (1945:123). Recent reassessment of the ceramic chronology and archaeomagnetic dates has indicated that Hawley was correct--large and small Chaco sites were occupied simultaneously into the 1100s and early 1200s. Should Gladwin's Hosta Butte definition, therefore, be extended to include small sites occupied through the middle 1100s?

The application of the term "Hosta Butte" is steeped in confusion. For instance, Hosta Butte has been used to describe any small site occupied contemporaneously with the "classic" portion of the Bonito phase (Vivian and Mathews 1965:109; Vivian 1970a and 1970b; Marshall et al. 1979:15, 337; Hayes 1981:20), a view essentially in agreement with Hawley (1937b) that makes a considerable adjustment to Gladwin's original definition. Others believe that small sites contemporaneous with the large town sites in Chaco in the early 900s and associated with a dominance of Red Mesa B/w among the decorated ceramics could properly belong to the Hosta Butte phase (Loose,

personal communication 1980)). This brings Gladwin's designation full circle from Hosta Butte sites not being associated with classic Bonito phase sites to Hosta Butte sites being only those associated with large Bonito phase sites. Although the latter definition is not a widely accepted one, it illustrates the diverse extremes of this temporal unit.

An additional difficulty with the application of this phase name became apparent during the Chaco Center's research involvement, e.g., late 1000s and early 1100s small sites associated with the later portion of the Classic Bonito phase were seen to exhibit much greater variability in construction techniques and spatial organization than had been realized at the time of Gladwin's study. For instance, should a six-room, symmetrically organized house with core-and-veneer masonry and thick pre-laid foundations; a 15- to 20-room house with rooms organized in square layouts completely surrounding pit structures; a 10- to 12-room, symmetrically ordered double room row with pit structures to the southeast; and a partially two-story, 25-to 30-room, irregularly agglutinated house all be considered Hosta Butte phase sites? Some would certainly be inclined to separate the core-and-veneer example from the others, yet with scrutiny, it becomes clear that there are other significant differences among all these examples. Others might argue that if these were contemporaneous, they could be identified as sites of the Hosta Butte phase. Regardless of whose definition one uses, the Hosta Butte phase does not seem to correspond to any of the temporal divisions used here.

Bonito Phase

The Chaco Center (Judge et al. 1981; Lekson 1984; Toll et al. 1980) used a three-part division of the Bonito phase: Early (900-1020), Middle (1020-1120), and Late (1120-1220). This system refers to a time rather than a site type distinction. All sites, regardless of size or construction, are included if they are associated temporally. This framework attempts to de-emphasize dichotomies and phase systems that recent information has rendered obsolete. However, I find one unsettling aspect in the common usage of this distinction since numerous researchers continue--in error or not--to refer to Gladwin's usage for large towns.

Pecos Classification

Previous researchers in Chaco have encountered difficulties in the Pecos Classification as applied to both small and large pueblos (Gladwin 1945:83-84; Kluckhohn and Reiter 1939:3; Vivian and Mathews 1965:107). These difficulties become immediately obvious when one compares large Chacoan structures with other contemporary building in the Anasazi region or even within the canyon; similar problems are apparent with reference to small site development in the later stages of Pueblo II and III, particu-

larly from the early 1000s on. It should be noted that for small sites only a portion of this classification is appropriate. If one accepts a reasonable amount of local variation when applying the Pecos Classification, early architectural development in Chaco can be characterized as essentially Basketmaker III and Pueblo I. This is not simply because Chaco is the location of the type site of Basketmaker III, Shabik'eshchee Village. In fact, Shabik'eshchee has some unusual characteristics, not purely the result of its size. It is unclear whether Shabik'eshchee accurately or even broadly represents the majority of habitations present in Chaco during this period of development since other excavated sites of this period correspond more closely to development outside Chaco than Shabik'eshchee per se.

Small site excavations have underscored problems with the use of Pecos Classification terminology, particularly for post-mid-A.D. 1000 small sites in Chaco due to the extensive formal diversity outlined below. However, since Chaco Center site survey used Pecos Classification designations as did previous researchers in the canyon, these time periods are necessarily referred to where further information on temporal affiliation is not available. Additionally, Pecos Classification references are used in discussions of project objectives which were set forth on the basis of these designations.

SMALL SITE INVESTIGATIONS

The Early Years

The following is not a complete history of small site investigations in Chaco Canyon. Excellent summaries by Brand et al. (1937), Hayes (1981), Lister and Lister (1981), and Pierson (1956) should be consulted for this information. The Chaco Center has amassed quantities of unpublished archival material during its investigations, which have added substantially to our understanding of previously excavated small sites. As part of the Center's inventory survey (Hayes 1981), numerous excavated, tested and vandalized sites were recorded and an effort was made to correlate unpublished notes with survey records. Table 2.1 presents a synthesis of this and previously published information. It should be noted that only fully or partially excavated small habitation sites have been included; no large structures, quarry sites, water control features, stone circles, shrines, or historic sites that have been excavated are listed. Figure 2.1 shows the locations of the sites listed in Table 2.1 with the exception of 29SJ 1579 and 29MC 184, which fall outside of the study area. (This report focuses on the sites within the canyon prior to 1980 legislation [P.L. 96-550] for additions to the park.)

Although one Archaic site (29SJ 126) was mapped and tested in 1972 by Thomas Lyons and Dennis Stanford, large-scale testing and excavation did

132 Small Sites

Table 2.1. Tested, excavated, and vandalized small sites.

| Chaco Survey # | Other # | Site Name | Dug by (names & institution) | Date Dug | Nature of Test or Excavation | Site Description (overall extent) | Estimated Age (Pecos Classif.) | Major Excavation References |
|--|-------------------------|--|--|-------------------|---|--|--------------------------------|--|
| 29SJ116 | | | T. Mathews (Chaco Center) | 1973 | Dug hearth; stripped 20 m; mapped artifacts; peripheral tests | | Archaic; CI4 = 2000 ± B.C. | Mathews—notes at Chaco Center |
| 29SJ126 | | | D. Stanford & T. Lyons (Chaco Center) | 1972 | Preliminary surf. clearing; 1 burned area cleared | Unknown | Archaic | Field notes at Chaco Center |
| 29SJ143 | Bc 315 | | Unknown | ? ? | 2-3 rooms partially dug | 2-3 rooms, 1 kiva? | Late PII-PIII | Chaco Center Survey |
| 29SJ200 | Bc 114* | Anna Shepard's Site | A. Shepard-San Diego Museum for UNM & SAR | 1929 | 3 rooms & trash test | Only Bc 114 = 9-12 rooms, 1 kiva? | PIII? | Pierson 1956:42; Dutton 1938:11 |
| (Bell3 also surveyed as part of 29SJ200 but not tested by Shepard; Site 29SJ2391-Bc 155 was originally part of 29SJ200 but also not tested in 1929) | | | | | | | | |
| 29SJ240 | | | R. Gordon Vivian | 1957 | 1 kiva & 1 room | 1 more undug room | PI??-PIII | Chaco Archives #2172F |
| 29SJ284 | | | Unknown | ? | 1 partially dug pithouse | Unknown | BMIII | Chaco Center Survey |
| 29SJ299 | (2 parts dug) | Rich's Site | R.W. Loose (Chaco Center) | 1973 | 3 pithouses, 10 storage cists, 1 baking pit, 1 PII kiva, trash | Unknown | BMIII; PII kiva | Loose 1979—Chaco ms. |
| - | | | T. Windes & K. Masterson (Chaco Center) | 1974 | 1/2 pithouse, 4 storage rooms, & ramada | Entire suite except rest of pith. | PI (ca. A.D. 710-740) | Windes 1976c—Chaco Center manuscript |
| 29SJ352 | Bc 395 | | Unknown | ? | Nature of vandalism not reported | 12+rooms; 3 kivas; 1 great kiva | PI-PIII | Chaco Center Survey; Chaco Archives #1193 |
| 29SJ368? | Vivian's "A-23" | | J. Haas & Gwinn Vivian (Chaco Canyon Water Control Project) | 1971 | 1 pithouse | 1 cist; 1 hearth; #? pithouses | BMIII | R. Gwinn Vivian 1970/71, 1980; Chaco Arch. 2064B, 2142F (map); 2057 |
| 29SJ383 | Bc 117&118 | | Unknown—Pepper's Burial Mound ??? | ? | Large pothole in trash mound of western site (Bc 117) | Only Bc 177=7-9rms; 1 kiva; trash (UNM) | PI-PIII | Chaco Center Survey |
| 29SJ394 | Bc 50 | Teeh So; Rock Crystal House | Brand, Hibben, Hawley, Bliss (UNM) | 1936 | 20 rooms plus 7 substructure rooms; | Mostly excavated; | BMIII-PIII | Brand et al. 1937; |
| | | | N. Glenn & W. Bliss (UNM) | 1937 | 4 kivas; 1 pithouse; trash mound between (shared by) Bc 50 and 51 | Some substructure rooms not dug | | Kluckhohn & Reiter 1939; Archives # 020, 016, 018, many listings; Pierson 1956:39; RSU reports—NPS #228) |
| | | | B. Clark (UNM) | 1938 | stripped for burials & many test pits and trenches | | | |
| | | | F. Seltzer & D. Senter (UNM) | 1939 | | | | |
| | | | Gordon Vivian & R. Rixey | 1949 | | | | |
| | | | (NPS-1st stabilization) | | | | | |
| 29SJ395 | Bc 51 | Didn't Say So | C. Kluckhohn, F. Hawley, W. Mulloy & W. Bliss (UNM) | 1937 | 1937=19 rooms, 6 kivas, trash grid tests (burials); 2 pithouse | Mostly? excavated | PI-PIII | Kluckhohn and Reiter 1939; Chaco Archives —many listings; Pierson 1956:40; Archives 206-214 |
| | | | Dr. A. R. Kelly (UNM) | 1938 | | | | |
| | | | Taylor for Reiter? | 1939 | South end rooms | | | |
| | | | Vivian (NPS)—1st stabil. 1949-50 | | dug more rooms - #? | | | |
| 29SJ396 | Bc 53 | Ignorance Hollow; Judd's Pithouse #1 | F.H.H. Roberts, Jr. (UNM) | 1940 | 20 rooms; 4 kivas; trash?? | Mostly? excavated | PI?-PIII | Pierson 1956:40-41; Archives 7, 262, 163, 396, 2059, 2077, 2103 |
| | | | P. Reiter (UNM) | 1941 | 1 pithouse??? | | | |
| | | | (Judd 1920??— see note at end of this table) | | | | | |
| 29SJ397 | Bc 57 | | P. Reiter (UNM) | 1942 | 9 rooms; 4 kivas; 1 earlier pithouse under trash mound | Mostly? excavated | Late PII-PIII | Pierson 1956:41; Chaco Archives 2059:8 |
| (NOTE: Locations of these two sites [Bc 57 and Bc 58] are reversed in Vivian and Mathews [1965] and Lister [1982]—see Anne Frome's notes in Chaco Center Archives) | | | | | | | | |
| 29SJ398 | Bc 58 | | C. Burroughs & S. Stubbs | 1947 | 10-11 rooms; 2 kivas | Mostly? excavated | PI through? PIII | Pierson 1956:41; Chaco Archives |
| 29SJ399 | Bc 59 | Tom Mathews Dig | Pepper's Burial Mound #1 | 1896 | trash mound dug for burials (Pepper) | Mostly? excavated | PII-PIII | Pierson 1956:42; Chaco Archives 2160R, 2059-2061; Mathews n.d.s., n.d.b., 1947 |
| | | | T. Mathews (UNM) | 1947 | 16-20 rooms; 3 kivas (Mathews) | | | |
| | | | Gordon Vivian (NPS-RSU) | 1950 | 1st stabilization & Kivas 4 & 5, additional rooms? dug | | | |
| 29SJ400 | Bc 52 | Casa Sombreada (also Bc 54 but Bc 54 used for another site subsequently) | W. Mulloy (UNM) | 1940, 1941(2 wks) | 19-22?? rooms; 3 kivas (Kiva 1 beneath Kiva 2) | Est. 25+ rms based viga holes; most dug | Late PII-PIII & late PIII | Chaco Archives 252, 253, 262, 263, 396, 2059, 2102?, 2103 |
| 29SJ408 | | | Unknown | ? | 3 rooms potted (excavated?) | 14 rooms; 1 kiva | PI-PIII & late PIII | Chaco Center Survey |
| 29SJ417 | Bc 171 | | F. Roberts, Jr. | ? | 1 kiva partially? dug; rooms also dug ?? | Orig. survey notes lost—rm. arch with kiva | PIII | Chaco Center Survey (no map) |
| 29SJ423 | | | T. Windes (Chaco Center) | 1973 | 3 pithouses?; 3 storage cists; 1 Great Kiva; 1 PIII shrine | extensive site; # pithouses unknown | BMIII; PIII shrine | Windes 1975a Chaco ms |
| 29SJ432 | Bc 172, Road Survey # 3 | | Unknown | ? | trash area trenched | 14 rooms; 1 kiva; road, 1 Navajo hogan | PI-late PII; Hist. | Chaco Center Survey |
| 29SJ540 | Bc 288; | Gallo Cliff Dwelling; Tee yaakini | D. Morris (NPS-SWAC) | 1966 | 1966-1 kiva at W. end | Bc 288-Structure 1 all? dug | Late PIII | Abel in Chaco Archives #2149; Chaco Center Survey |
| | | | L. Abel, M. Mayer, & Buckingham (NPS-SWAC) | 1967 | 1967-4 rooms (Abel's Report) | | | |
| | | | (29SJ549 also included Bc 347 and 349; 349 (Navajo site); 347 stabilized by D. Morris in 1966) | | | | | |
| 29SJ542 | Bc 216 | | Unknown | ? | 1 room excavated? | 1-2 rooms; kiva? | Early PII | Chaco Center Survey |

Table 2.1 continued.

| Chaco Survey # | Other # | Site Name | Dug by (names & institution) | Date Dug or Excavation | Nature of Test | Site Description (overall extent) | Estimated Age (Pecos Classif.) | Major Excavation References |
|--|---|---|---|--|--|---|---------------------------------------|---|
| 29SJ580 | Bc 223 | | Unknown | ? | 1 room partially excavated | 6-8 rooms; 1 kiva; trash mound | PI-early PIII | Chaco Center Survey; Pierson's Survey 1955 |
| 29SJ589 | Bc 236 | Zorro Bradley's Site | Z. Bradley (NPS) | 1958 | 10 rooms; 1 kiva; 1 oven; 1 cist; 1 earlier (PI) pithouse | Mostly? excavated | PI; PIII & late PIII | Bradley 1971 (NPS) |
| 29SJ597 | | | T. Windes (Chaco Center) J. Trott, R. Anderson & J. Bradford (NPS-SWRO) J. Bradford (NPS-SWRO) | 1979 ('79) pit structure test 1980 ('80) 4 tests, 1 firepit, 3 heating pits, 1 burial, trash; ('81) stripped large area of thin trash 1981 | | 2+? rooms, 1 pit structures (most of site on other side of modern road) | PI, early PII, PIII, Hist. | Notes by Windes (1980) & Bradford (1980-81) on file at Chaco Center |
| 29SJ625 | Bc 243 | The Three-C Site | Gordon Vivian, H.K. Boone " " R. Rixey (NPS) T. Windes, E. Neller (Chaco Center) | 1939 9 rooms ('39) 1949 2 kivas ('49) 1976-77 reopened N.E. rooms & 2 kivas | | Mostly dug-some of lower floors still not excavated | PI-early PII, PIII? | Vivian & Mathews 1965 (UNM Press) |
| 29SJ626 | | | T. Windes (Chaco Center) | 1975 | 6 shallow tests--3 through rooms, 3 through trash mound | 5-6 rooms, 8? pit structures; trash (most late PI) | PI-early PII (most late PI) | Windes notes on file at Chaco Center |
| (Additional work on this site proposed for 1982 by J. Bradford of NPS not yet started at the time of this report.) | | | | | | | | |
| 29SJ627 | | | M. Truell (Chaco Center) | 1974, 1975 | 25 rooms, 6 pit structures (7th not dug); trash mound tested | Mostly excavated | PI-early PIII | Truell 1980 (Chaco Center manuscript) |
| 29SJ628 | | | M. Truell (Chaco Center) | 1973 | 6 pithouses, 6 storage cists, 2 exterior hearths | Extent unknown | RMIII-PI | Truell 1976 (Chaco Center manuscript) |
| 29SJ629 | | Spade Foot Toad Site | T. Windes (Chaco Center) | 1975, 1976 | 8 rooms, ramada area, 2 pithouses, 1 kiva, trash mound test | Mostly excavated | PI-early PII; early PIII | Windes 1978b (Chaco Center manuscript) |
| 29SJ630 | | | E. Neller, R. Powers (Chaco Center) | 1975 | 2 small tests through the trash mound | 3-4+ rooms, 1-2 kivas, trash md. | PII-early PIII | Powers' notes on file at Chaco Center 1975 |
| 29SJ633 | Bc 187 | The 11th Hour Site | M. Truell and L. Jacobson (Chaco Center) | 1978 | 1 1/2 rooms, test through top of 1 kiva; 2 plaza tests | 12-15 rooms, 3+? kivas; trash mound (in PIII portion) | Early & late PIII; PI & Hist. not dug | Truell 1979 (Chaco Center manuscript); Jacobson 1979 (Chaco Center manuscript) |
| 29SJ646 | Bc 354 | | Unknown | ? | 1 room excavated or vandalized | 16-19 rooms, 3-4 kivas, hearth, trash | PI-PIII; Hist. | Chaco Center Survey |
| 29SJ721 | Bc 164 | | T. Windes (Chaco Center) | 1973 | 1 kiva, 2 pithouses, 6-7 cists or baking pits; 1 room | Most excavated??? | RMIII-PI; early PIII | Windes 1976a (Chaco Center manuscript) |
| 29SJ724 | | House Block 1 | T. Windes | 1974 | 10 rooms, ramada, 1 pith., trash test | Most of House Block 1 dug | PI (House Block 1) | Windes 1976b (Chaco Center manuscript) |
| 29SJ746 | Bc 84 | | Gwinn Vivian ? (Chaco Water Control Project?) | ? | 2 room walls exposed by test trench | 17 room field house | Late PII-early PIII | Chaco Center Survey |
| (Not clear from Vivian's maps whether this site is the same one he tested or not) | | | | | | | | |
| 29SJ748 | Bc 74 or Bc 75 | | Unknown | ? | 2 rooms dug | 18-21 rooms, 3-4 kivas, trash mound | PII-early PIII | Chaco Center Survey |
| 29SJ750 | Bc 26, Bc 24 | Leyit Kin | R. Dutton (SAR & UNM) | 1934, 1936 | 14 rooms, 4 kivas (2 parts cleared), trash mound test | Some trash & early rooms? not dug | PI-early PIII | Dutton 1938 (UNM Press); Brand et al. 1937; Dutton '35, '37 |
| 29SJ753 | Bc 56 (Bc 78 through 83 also included in 29SJ753) | | P. Reiter (UNM) | 1941 | Bc 56--8 rooms, 2 kivas, burials, extent of excavation uncertain | Unknown, badly eroded | Late PIII (Bc 56) rest=PII-early PIII | Pierson's Survey Pierson 1956:41; Chaco Chaco Arch. 234, 235, 250-256 |
| 29SJ758 | Bc 85 | | Unknown | ? | Test up to E. kiva enclosing wall | 4-6 rms., kiva, trash | PII-early PIII | Chaco Center Survey |
| 29SJ759 | Bc 72 | | Unknown | ? | Trash mound looted for burials | 4-7 rms., kiva, trash | PII | Chaco Center Survey |
| 29SJ798 | Bc 63 (Pierson says this dug but not evident) | | | ? | | (4?) 6-9 rms., kivas, trash | PI-PIII; Hist. | Pierson & Chaco Survey |
| 29SJ799 | Bc 61 & Bc 60 (Bc 60 not dug) | Fisher's #21, Wilson's #27, Kin Chinde, Casa Rinconada #5 | M. Hollenbach & B. Dutton (SAR & UNM) | 1934 | (Bc 61) 4-5 rooms, trash mound test pit structure not? dug | Most of 61 dug Bc 60 not excavated | Bc 61=PI-PIII? | Pierson 1956:41, Brand et al. 1937:26 Dutton 1935 (unpub.) |
| 29SJ823 | Bc 263 | Kin Sabe | R. Wetherill/G. Pepper Neil Judd (NGS) W.W. Postlethwaite (SAR & UNM) A. Hayes, C. Harding (UNM) | 1896-1900 1925? 1931 1937 | 8 rooms? dug | Unk. # rooms & kivas; much of this site may have fallen into the Chaco Wash | PII-PIII | Judd 1954, 1959, 1967; Pierson 1956:43 Reiter Powers Vol. III 220-221 (Chaco Center) Postlethwaite 1931 |
| 29SJ827 | Bc 362 also Bc 250 | Voll's Site | C. Voll, R. Richert (NPS) | 1962 | 18 rooms, 3 kivas, 2 plazas | Mostly excavated? | PIII | Voll's 1964 report (Chaco Archives 505) |

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Table 2.1 continued.

| Chaco Survey # | Other # | Site Name | Dug by (names & institution) | Date Dug | Nature of Test or Excavation | Site Description (overall extent) | Estimated Age (Pecos Classif.) | Major Excavation References |
|--|-----------------|--|--|------------|---|---|--------------------------------|--|
| 29SJ834 | Bc 122 | | Unknown | ? | 1 room dug or vandalized | 7 rooms, 2 kivas | PIII | Chaco Center Survey |
| 29SJ838 | Bc 126 | Hutch's Site | C. Hutchinson, A. Ely, J.C. Kelley (SAR & UNM) | 1933? 1934 | 6 rooms, 2 kivas, trash; badly looted before excavation under Fisher; mapped by Richert in ? | Mostly? excavated | PII-PIII (mostly PIII) | Chaco Archives 487, 570, 1031, 1193-1194; Brand et al. 1937:26; Pierson 1956 |
| (Pierson's M.A. Thesis says that Marion Hollenbach dug this but this seems unlikely from other information.) | | | | | | | | |
| 29SJ1010 | | The Poco Site (also called the "Curious Site") | D. Drager, T. Lyons (Chaco Center-Remote Sensing) | 1975, 1976 | Parts of 3 low walled circular structures | Rooms?, 8-10 circular structures, road | PIII | Drager & Lyons 1983 |
| 29SJ1054 | Bc 363 | | Gordon Vivian?? | 1947? | Portion excavated unknown | 2 rooms, 1 kiva | Early PIII | Pierson & Chaco Surv. |
| 29SJ1156 | | Atlatl Cave | T. Mathews (Chaco Center) | 1975, 1976 | Tested, rock shelter | Mostly? excavated | Archaic | Mathews et al. 1975; Mathews & Neller 1979; Neller 1975, 1976a |
| 29SJ1157 | | Sleeping Dune Site | E. Neller (Chaco Center) | 1976 | Tested dune, mapped artifact distribution | Extent unknown | Archaic (BMIII) | Neller 1976b |
| 29SJ1200 | Bc 64 Bc 64A | | J. Maloney (SAR & UNM) | 1936 | 1 pithouse?, 5 storage cists | 1 additional pith.? | BMIII | Pierson 1956:42; Vivian & Reiter 1965: Fig. 3 |
| 29SJ1259 | | | Unknown | ? | 1 room partially excavated | 2 rooms, 1 kiva, trash mound | PII-early PIII | Chaco Center Survey |
| 29SJ1272 | Bc 237 | | Unknown | ? | Trash mound turned over for burials | 10-15 rooms, 2 kivas, trash, pit-house, earlier ras | PI-PIII | Chaco Center Survey; Pierson's Survey |
| 29SJ1278 | Bc 239 | | Unknown | ? | 1 room potted; trash turned for burials | 14-19 rooms, 1-2 kivas, trash | PII-PIII | Chaco Center Survey; Pierson's Survey |
| 29SJ1297 | Bc 369 | | Unknown -Pepper?? | ? | Trash mound looted for burials | 5-9 rooms, kiva, trash mound | PI-early PIII | Chaco Center Survey; Pierson's Survey |
| 29SJ1360 (part of 29SJ1278??) | | | C.R. Morrison | 1974 | 14 rooms, 1 pithouse, 1 kiva, ramada, 3 trash tests took archaeological samples.) | 18 rms, 5 pit structures, ramada trash, extent unk. | PI-early PII | McKenna 1981b; 1983 (manuscripts on file at the Chaco Center) |
| 29SJ1361 | | | Unknown | ? | Trash mound turned for burials | 3-4+ rooms, 1 kiva, trash mound | PII | Chaco Center Survey |
| 29SJ1375 | | | Unknown | ? | Trash mound turned for burials | 5+ rooms, 1 kiva, trash mound | PI-early PII; Hist. | Chaco Center Survey |
| 29SJ1396 | Bc 230 | | Unknown | ? | Trash mound potted? | 25+ rooms, 3 kivas, trash mound | PI-PIII; Hist. | Chaco Center Survey; Pierson's Survey |
| 29SJ1579 | | | R. Wetherill | 1900? | Extensive "testing" of trash for burials | 15+ rooms, 1+ kiva, pithouse? | PI-PIII | Reiter's Papers Vol.7 (Chaco Archives) Chaco Center Survey |
| 29SJ1586 | | | Unknown | ? | Potholes in trash mound | 25-29+ rooms, 2+ kivas, trash mound | PI-early PIII; Hist. | Chaco Center Survey |
| 29SJ1602 | | | Unknown | ? | Potholes in trash mound | 10-14 rooms, 3 kivas, trash mound | PI-PIII | Chaco Center Survey |
| 29SJ1657 | Bc 244, Bc 373 | Half House | R. Adams, L. Knudson, M. Raphael under Reiter (UNM) | 1947 | Portion of 1 pithouse | Extent unknown | PI | Adams 1951:273-295; Judd 1964; Vivian & Mathews 1965 |
| 29SJ1659 | | Shabik'eshchee Village | F. Roberts, Jr. (Smithsonian) A. Hayes, J. Thrift (Chaco Center) | 1927 1973 | 18 pithouses, 1 Great Kiva, 48 storage bins, 3 sm. trash mds tested 2 pithouses & storage cists | Extent unknown | BMIII-PI | Roberts 1929; Hayes & Thrift 1973; Thrift [1973], Hayes [1975] notes on file at Chaco Center |
| 29SJ1664 | Vivian's "I-13" | | Gwinn Vivian, J. Haas (Chaco Water Control Project) | 1971 | 1 field house | Extent unknown | Early PII | Chaco Center Archives 2064, 2142 (map) |
| 29SJ1678 | Bc 194 | Judd's Pithouse 2, Hall's 72 H 90 | N. Judd (National Geographic Society) | 1922 | 1 pithouse | Extent unknown | BMIII-PI; early PIII | Judd 1924, 1964:21 |
| 29SJ1755 | Vivian's A-17 | | Gwinn Vivian, K. Atkinson (Chaco Water Control Project) | 1971 | 1 field house partially excavated | 1 room? | Early PII | Chaco Center Archives 2064, 2142 (map) |
| 29SJ1764 | Vivian's A-24 | | Gwinn Vivian, J. Haas (Chaco Water Control Project) | 1971 | 2 rooms dug | Entirely excavated? | Late PII | Chaco Center Archives 2064, 2142 (map) |
| 29SJ1809 | | | Gordon Vivian? | ? | 7-9 rooms, 2-4 mealing bins, trash? | 10-15 rooms, 1 kiva, trash mound | PI-PIII | Chaco Center Survey; Chaco Archives 1 |

Table 2.1 continued.

| Chaco Survey # | Other # | Site Name | Dug by (names & institution) | Date Dug | Nature of Test or Excavation | Site Description (overall extent) | Estimated Age (Pecos Classif.) | Major Excavation References |
|---|---------|---|---|--------------|---|--|--------------------------------|--|
| 29SJ1912 | Bc 193 | Lizard House | J. Maxon, R. Richert? (NPS) | 1960 | 17 rooms, 3 kivas | Most of the site dug, no trash | Late PII-PIII | Maxon 1963 (unpub.) |
| 29SJ1921 | Bc 55 | | T. Ruggels, M. Chandler, P. Reiter (UNM) | 1941 | 2-3 rooms | 15-17 rooms, ? kivas | PII-PIII? | Pierson 1956:41, Chaco Center Survey |
| 29SJ1922 | Bc 54 | | P. Reiter, W. Mulloy, R. Bullen (UNM) | 1941 | 4 rooms and portions of several more; 3 kivas | Badly eroded, orig. size unknown | PII-PIII? | Bullen [1941] in Chaco Archives (2086) |
| 29SJ1924 | Bc 86 | | School of American Research | 1934? | 2 rooms | 10-12+ rooms, ? kivas | PII-PIII | Pierson's Survey; Chaco Center Survey |
| 29SJ1927 | Bc 89 | Talus Unit? | S.A.R. -- F. Hawley | ? | 2-3? rooms | 11-13 rooms, 1 kiva | PI-PIII | Chaco Center Survey |
| 29SJ1935 | Bc 348 | | R. Wetherill? | 1890s | 2? rooms, 1 kiva (6 toed feet) | Mostly dug? | Late PIII | Pierson & Chaco Center Survey |
| 29SJ1936 | Bc 98 | Talus Rock Shelter | F. Hawley (SAR) | 1930, 1933 | Shelter with fireplace and storage room walls | Unknown | PII?-PIII | Hawley 1934:63; Bannister 1965:193 |
| 29SJ1987 | | | J. Schelberg, K. Masterson (Chaco Center) | 1973 | Hearth | Unknown | BMII | Chaco Center Survey |
| 29SJ2260 | | | Unknown | ? | 1 room dug, backdirt obscured walls | 4 rooms, 1 kiva? | Early PIII | Chaco Center Survey |
| 29SJ2363 | | | Unknown | ? | 2 walls of 1 room exposed | 16-20 rooms, 2 kivas | Early PIII | Chaco Center Survey |
| (29SJ2384 known as "Roberts' Small Pueblo" dug in 1926 for the National Geographic Society by Frank H. H. Roberts, Jr. is thought to be the foundations, either in construction or in the process of collapse, of a "large town" site and not part of this study despite its designation Judd [1964:21]; Dutton [1938:11]; Chaco Center Archives 2108.) | | | | | | | | |
| 29SJ2385 | Bc 262 | Turkey House, F. Roberts, Jr. (NGS) Roberts' Small House | | 1926 | 9 rooms, 6-7 burials, East court | 10? rooms, 1-3+ kivas | PI-PIII | Judd 1964:21; Dutton 1938:11; Chaco Archives 2108 |
| 29Mci184 | | | T. Mindes (Chaco Center) | 1975 | 4 shallow test trenches through trash mound | 4-5 rooms, 4-5 pithouses, 2-7 storage bins, 2 cists | PI | Mindes notes on file at Chaco Center; Chaco Center Survey |
| Sites of Unknown Number or Location | | | | | | | | |
| This site not located--1 mile E. of Turkey House (29SJ2385) | | | F. Roberts, Jr. (NGS) | 1926 | At least 3 rooms, burials, probably most of site dug | Unknown | Late PIII? | Chaco Archives 2108: 15 |
| 0? "Judd's Pithouse #1" May be beneath a portion of Bc 53? (29SJ396) | | | N. Judd (NGS) | 1920 | 1 pithouse | Extent unknown | BMIII-PI | Judd 1924:399-413 Judd 1964:21 |
| No Chaco Survey # Bc 48 | | | Gordon Vivian, P. Reiter R. F. Maher | 1932 1947 | Maher found nothing; Reiter & Vivian removed a few? burials in 1932 | "pitted for burials" N. & below Penasco Blanco, 200 yd SE of Escavada monument fence | ? | Maher's report on file at Chaco Center; Vivian's note--Chaco Archives #393 |

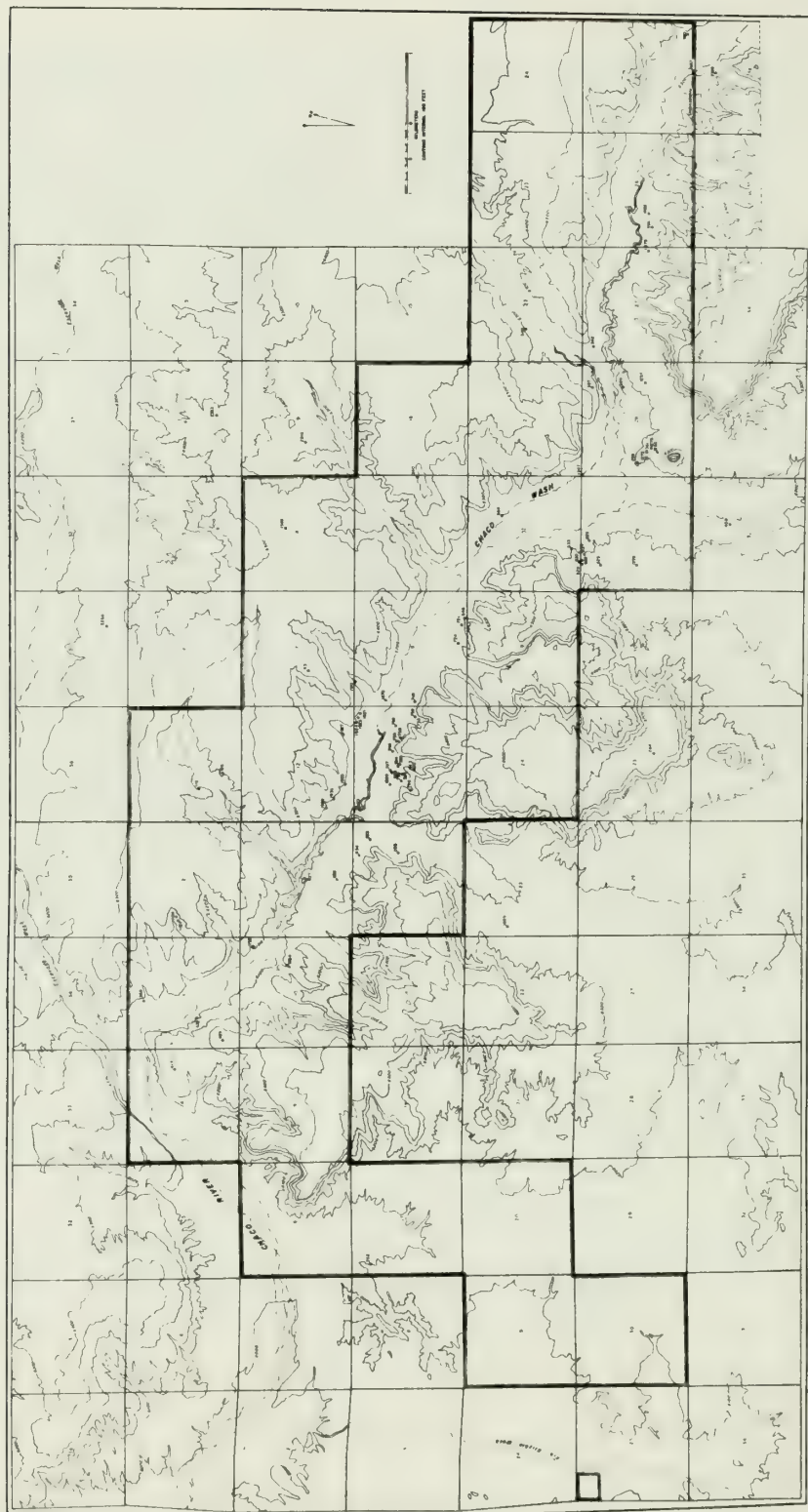


Figure 2.1. Map showing excavated, tested, and vandalized small sites.

not begin until 1973 when portions of two Archaic sites (29SJ 116 and 29SJ 1987) and five Basketmaker III/Pueblo I sites (29SJ 299, 29SJ 423, 29SJ 628, 29SJ 721, and 29SJ 1659) were dug (Table 2.2). The Archaic sites that have been excavated do not form part of this report, although the extent of these tests is outlined in Table 2.1 since they were part of the center's involvement.

The assessment of the period of occupancy of a number of the sites listed in Table 2.1 was taken directly from the Chaco Center's site survey cards, largely before Schelberg's revision of this information in 1982 (Windes 1985) when, as noted, temporal affiliations were made according to the Pecos Classification. Hayes (1981:18-20) discusses the specific adaptations of this classification to the Chaco survey. Where data are available, the temporal refinement of sites and particular proveniences is presented in Chapter Two.

In examining the records concerning excavated and vandalized small sites in Chaco, it is apparent that most of the research has focused on the larger small sites with occupations extending into the late 1000s-early 1100s. Many references can be found that document the repeated assault's made in search of burials, on the extensive trash mounds associated with these sites during the Wetherill/Pepper/Putnam days and, unfortunately, even more recently (Akins and Schelberg 1981:2-3). These searches were probably directed at this group because they comprised the more visible, larger, masonry houses that may also have represented, at least in many cases, the longest occupancy and greatest trash deposition. Further, it is logical that these houses would be the same as those emphasized in later more systematic inquiries of the 1930s and 1940s, since they offered time depth potential as well as an opportunity for comparison with large Bonitian style structures.

The Chaco Center Years

The following presents a very brief account of the Center's research objectives, from a small site perspective. For a more detailed discussion, consult McKenna (1981b) and Truell (1976, 1980).

The Chaco Center was organized under the auspices of the National Park Service in cooperation with the University of New Mexico in 1971. The first and most important objective was to compile an inventory of the cultural remains within Chaco Canyon National Monument. Although the majority of the survey was conducted within the legal boundaries of the monument at that time, some contiguous areas were also examined in order to include inventories of complete physiographic features. This survey was formally concluded in 1975, but areas continued to be spot-checked and the file updated until the present.

There are several reasons why the initial small site excavations conducted by the center focused on the Basketmaker III period. Some examiners

Table 2.2. Small site excavations and tests conducted by the Chaco Center.

| <u>Year</u> | <u>Site</u> | <u>General Temporal Affiliation*</u> |
|-------------|-------------|--|
| 1972 | 29SJ 116 | Archaic |
| 1973 | 29SJ 116 | Archaic |
| | 29SJ 299 | 500s-early 700s part; one early 900s-1000s pit structure |
| | 29SJ 423 | late 400s-early 700s; late 1000s-early 1100s shrine |
| | 29SJ 628 | 500s-late 700s/early 800s? |
| | 29SJ 721 | 500s-early/middle 900s (not continuous occupation) |
| | 29SJ 1659 | 500s-late 700s [Shabik'eshchee Village] |
| | 29SJ 1987 | Archaic |
| 1974 | 29SJ 299 | middle/late 700s-early 900s portion (see 1973 season) |
| | 29SJ 627 | middle/late 700s-middle 1000s; early 1100s (small part) |
| | 29SJ 724 | middle/late 700s-early 900s |
| | 29SJ 1360 | middle 800s-late 900s/very early 1000s |
| 1975 | 29SJ 626 | middle/late 700s-late 900s??(PI-early PII) |
| | 29SJ 627 | (see above--most excavation finished in 1975) |
| | 29SJ 629 | late 800s-very early 1000s, brief occupation 1100s? |
| | 29SJ 630 | early/middle 900s??-1000s/1100s? (PII-early PIII) |
| | 29SJ 1010 | PIII? |
| | 29SJ 1156 | Archaic |
| | 29MC 184 | late 700s-early 900s? |
| 1976 | 29SJ 629 | (see above--excavations completed in 1976) |
| | 29SJ 1010 | (see above) |
| | 29SJ 1156 | (see above) |
| | 29SJ 1157 | Archaic |
| 1978 | 29SJ 633 | early 1100s-middle 1200s |

* Dates listed above are shown as inclusive, which in some cases is not accurate; hiatuses in occupation are noted in a number of cases; general dates used are broken down by time groups used in the text; Pecos Classification dates are indicated in some cases where limited excavations and restricted amounts of relative and absolute dating prevent further refinement.

NOTE: Some of these sites may have longer occupations than the tested sections indicate. The temporal affiliation relates to the specific year listed.

of Chaco believed that the large structures constituted a Toltec outpost, or that they evidenced Mexican origins (Ferdon 1955; Lister 1978), and thus had little or no structural and possibly social connection with the surrounding small sites (Grebinger 1973; Vivian 1970b). Gladwin (1945) maintained that small houses, although initially contemporaneously occupied with large structures, were abandoned before the latter group, while Hawley (Brand et al. 1937) concluded that they continued in use. In order to examine the origins of and relationships between large and small sites and within the small site group, it is necessary to understand more about their variability through time. Prior to the center's investigations, very few small sites occupied from the 500s through early 900s had been examined, although Shabik'eshchee Village continued to be recognized as the "type site" for Basketmaker III. The major objective, was to excavate a number of small sites throughout the canyon, believed to be representative of consecutive time periods of Anasazi occupation from Basketmaker III through Pueblo III, in order to examine small site development. An effort was made to select sites for excavation that had short-term occupancy to avoid extensive temporal mixing of cultural remains.

An additional incentive for beginning with Basketmaker III period habitations, apart from its being the first intensive period of Anasazi occupation, was to compare further the apparent late beginning of this period of habitation in the canyon with evidence of its earlier presence in other areas of the Anasazi region. Tree-ring dates, some of which were cutting dates, from samples collected in 1940 at Shabik'eshchee Village (by Deric O'Bryan for Gila Pueblo) had dated the wall members from the Great Kiva and House H to the middle of the 700s (Bannister 1965:192). Much of the construction at this site, however, if located elsewhere within the Anasazi region, might indicate dates at least a century earlier. On the basis of the dendro dates, it has been suggested that Chaco got off to a slow start (Hayes, personal communication 1978; Schroeder, personal communication 1983). It was apparent that this position could not be supported by a few dates from a single site, so the Laboratory of Tree-Ring Research in Tucson reexamined O'Bryan's Shabik'eshchee Village samples in 1968, which resulted in significant revisions (Robinson et al. 1974:39). Although no cutting dates were encountered in this reexamination, the samples suggested dates in the 500s. Unfortunately the Chaco Center was unaware of these revised dates in 1973 when excavations within the canyon and additional tests at Shabik'eshchee Village were undertaken.

As the project's small site excavations progressed, the original objectives were refined. Investigations focused on three areas evidencing long-term small site habitation: one area north of the base of Fajada Butte, another near the mouth of Werito's Rincon, and a third on the south side of the canyon opposite the existing Visitor Center (Table 2.1). It was hoped that by examining a limited geographic area, from early to late, a unified picture of small site change through time could be gained in each location and compared with the other two. Unfortunately, at the end of the 1974 field season, with limited time remaining and the projected excavations of Old Pueblo Alto still to be accomplished, explorations in two of the three areas were terminated. Only the location opposite from the monu-

ment's Visitor Center, known as "Marcia's Rincon," continued to be investigated during the summers of 1975 and 1976.

In 1978, an additional small test was made at Site 29SJ 633. This extremely limited test filled a critical gap in the sequence of sites excavated in Marcia's Rincon, i.e., the site's initial construction phase was contemporaneous with that of the extensive late 1000s-early 1100s of the Great Houses.

Another reason for the selection of Marcia's Rincon for continued testing was the proximity of this area to the existing south road in the monument. The National Park Service was interested in incorporating the series of sites in this area into its interpretive program as illustrative of small site development within the canyon. The location of this area was attractive since it was readily accessible to a thoroughfare already in use.

Table 2.2 lists the small sites excavated by the Chaco Center according to the year in which they were investigated. It is provided as a key to the information presented on these sites in Table 2.1.

A total of 12 small sites were excavated and tested by the Chaco Center. These include (1) restricted examinations of two pit structures and several storage cists at Shabik'eshchee Village (Hayes 1975), previously investigated by Frank H. H. Roberts, Jr. in 1927 (1929), and (2) testing in a portion of the roomblock and reexcavation of the pit structures at the Three-C site, originally excavated by R. Gordon Vivian in 1939 (1965).

Summary

Briefly, the Chaco Center's small site investigations have disclosed a developmental complexity within the canyon, that contradicts the original lumping of these structures into a single type (Gladwin 1945; Grebinger 1978; Vivian 1970a, b). Contrasting spatial arrangements are particularly apparent in houses constructed in the late 1000s and early 1100s (Truell 1981). There may be an increase in diversification through time, however, despite the center's recent explorations, this seems to be a premature suggestion since such a restricted sample of earlier small sites has been excavated.

As noted by Lekson (1982a:III, 1984) and Judge et al. (1981), the symmetrical organization of early 900s small sites is similar to that known from the western portion of Pueblo Bonito, constructed during the same period, and possibly to Una Vida and Peñasco Blanco as well. There remain major distinctions in scale (room size, rooms in a suite, number of stories) and construction (materials used and preparation of them), but similarities in spatial organization are far more frequent than previously noted. Despite these differences, many similarities between large and

small sites have been encountered repeatedly in the Chaco Center's investigations, arguing for a high degree of communication and relationship among these sites.

TEMPORAL PLACEMENT

Since most of the following determinations are contingent upon available dates, the temporal framework and the problems specific to dating architectural units are crucial. The limited number of contexts with absolute dates has restricted the extent to which the definite temporal placement of structures is possible. An attempt was made to assign rooms or pit structures to time slots based principally on ceramic association, supplemented by intrasite contextual interrelationships. There is a temptation, in the absence of reliable dates, to assume that physical similarity implies contemporaneity. Clearly the potential for such relative judgments is variable, contingent on a number of specific site factors. In this study, an attempt was made to describe the physical features that occurred in a specific time period, though the dates adequate for such placement were not available. Perhaps it would have been preferable to use reliable absolute dates supported by relative dating methods for the initial considerations of change or consistency in architectural form, subsequently incorporating better relatively placed proveniences. However, the beam reuse pattern found in small sites and the problems encountered with the accuracy of the few archaeomagnetic and radiocarbon dates available from these proveniences restricted the number of reliably dated areas to very few.

For these reasons, ceramics became the most important indicator of temporal affiliation despite a number of difficulties associated with their use. The ceramic assemblages used for relative temporal determinations are listed in Table 2.3. The criterion for association with a particular group is determined by the frequency of occurrence of the types listed. Only types noted by McKenna, Toll, and Windes (personal communications 1980) (as occurring commonly within specific time periods) are listed. (This table was reviewed and revised by Peter J. McKenna; some changes suggested by Tom Windes were incorporated). The collections from early excavations were often not available for reexamination, the reliability of any reassessments being variable in any case. The securing of useful data from a reexamination is dependent on the ability of the researchers to determine the types recorded in the original tabulations and to establish their correspondence to those presently in use. In a few instances, portions of collections were located and reclassified by either McKenna (Bc 59) (1981c) or Windes (Lizard House, Bc 362, Gallo Cliff Dwelling, and the PI portion of 236). Reexaminations of surface collections found on trash mounds or roomblocks of other excavated sites, as well as examination of whole vessel collections (the Three-C Site), have given general impressions of the dates of the sites but not of the specific structures. Provenience information and the type of association (post-occupational trash, etc.) was extracted from published and unpublished reports.

Table 2.3. Dominant ceramic types by time period.

| <u>Period (A.D.)</u> | <u>Types</u> |
|---|--|
| 500s-early 700s (late 400s-500s = | Decorated wares: La Plata B/w; White Mound B/w; Lino B/g; Piedra B/w; Abajo B/o; Bluff B/r; Sanostee B/o; Gray Wares: Lino Gray; Lino Fugitive higher frequencies above, ca. 10% Woodruff brownwares |
| middle/late 700s- early/middle 900s (700-early 800s = | Decorated wares: Kiatuthlanna B/w; "early" Red Mesa B/w; White Mound B/w; Piedra B/w; Tunicha B/w; Deadman's B/r; Bluff B/r; Peña B/w Gray Wares: Kana'a wide neckbanded; "narrow" neckbanded; Lino Gray; Grey Hills Gray; Tohatchi neckbanded White Mound B/w; Piedra B/w and Lino Gray dominate) |
| middle/late 900s- early/mid 1000s | Decorated wares: Red Mesa B/w; Newcomb B/w; Burnham B/w; Naschitti B/w; Cortez ("Cortancos") B/w; early Gallup B/w (mid 1000s); Puerco-Escavada B/w; Deadman's B/r Gray Wares: "narrow" neckbandeds (see above); neck corrugateds (Captain Tom's Corrugated; Newcomb Corrugated; Coolidge Corrugated, etc.; Tohatchi Neckbanded |
| late 1000s-middle 1100s (see text) | Decorated wares: Gallup B/w; Puerco-Escavada B/w; Mancos B/w; Chaco McElmo B/w; Chaco B/w; Sosi B/w; Black Mesa B/w; McElmo B/w; Brimhall B/w; Nava B/w; Toadlena B/w; Chuska B/w; Tusayan B/r; Puerco B/r; Wingate B/r Gray Wares: Chaco Corrugated; Mancos Corrugated; Blue Shale Corrugated |
| late 1100s-1200s | Decorated wares: Chaco B/w; McElmo B/w; Mesa Verde B/w; Chaco McElmo B/w; Nava B/w; Crumbled House B/w; Wingate B/r; St. Johns Polychrome; Tusayan Polychrome Gray Wares: Hunter Corrugated; Mummy Lake Gray |

Although calendric dates have been associated with ceramic assemblages (Table 2.3), the full extent of the periods may not be well represented by excavated small site structures. Noticeable informational gaps exist in the early to middle 700s, in the early to middle 800s, and the late 800s to early 900s, as well as the late 1000s portion for which almost no absolute dates have been encountered. Additionally, few sites from the late 1100s and 1200s have been excavated. The implications of some of these gaps have been "too much discussed, too much explained" (after Eliot 1930) and remain poorly understood. They may have resulted from a decline in small site construction, corresponding, for example, to periods of drought or increased large site construction and reflecting vacillations in canyon population, or the gaps may merely be those in our own record.

The Small Site Record

Of the three or four major gaps in our record, the interval of the late 1000s has received the most attention. This gap could be due to sampling error. Despite the extensive amount of small site excavation and surface examination that has taken place in Chaco, trash mounds accumulated over long periods of time (generally those associated with sites whose occupation extends into the early 1100s) show, as would be expected, mixed ceramic assemblages. Except for a single restricted test, the Chaco Center did not excavate any sites that had been extensively occupied beyond the early to middle A.D. 1000s, leaving a gap in our excavation record. Although excavations from earlier projects may have included information from this period, few records remain. From available data, it may be impossible to isolate this period of occupation.

Aside from potential sampling restrictions, this temporal gap may be related to a construction florescence in the large Chaco sites associated with the late 1000s. If extensive large site construction was undertaken during this period and small site occupants were involved in this building, as some have suggested (Lekson 1982a; Truell 1981), there may have been neither the time nor the resources to expend on small site construction.

Windes (personal communication 1982), however, indicates a discrepancy in ceramic assemblages between large and small site trash accumulations, which he considers evidence of a reduction not merely in construction but in occupation in small sites. He suggests that the inhabitants of the canyon moved into the large town sites during the 50-year period from ca. 1040s - the late 1000s. Windes finds only a few small sites that, from surface indications, have what he terms "pure Gallup B/w assemblages, i.e., those characterized by the clear dominance of Gallup B/w pottery among the decorated wares and by their occurrence in large site trash mounds of the late 1000s in Chaco this conclusion is in contrast to one formed of the middle 1000s, where large and small sites alike evidence a mixed dominant assemblage of Red Mesa B/w and Gallup B/w. A number of archaeologists (Akens 1982; Lekson 1982a; Windes 1981) have noted that these large site trash mounds of the late 1000s represent specialized, short-term deposits

in contrast to most small site middens, which generally appear to be gradual, extensively mixed accumulations of household debris. The mixed nature of small site trash, generally not expressing the fine stratification encountered in the large site mounds, may also be a distinguishing feature of the former.

Two additional suggestions, proposed by McKenna (personal communication 1981), are that the ceramic assemblages from this period may differ slightly between large and small sites, and that Red Mesa B/w may continue in use for a longer period (extending through the late 1000s) in the small sites than in the large ones.

In conclusion, we do not have adequate information to resolve this question. It is difficult to explain a 50-year lapse in small site habitation during a large site construction boom, on either side of which (during the middle 1000s and during the early 1100s) there is such intensive activity in small site construction. If many inhabitants of small sites assisted in large site construction, they may have consumed many of their meals and spent the majority of their time there.

The Sample

Undoubtedly differential adoption and abandonment of architectural characteristics occurred between and perhaps within small Chacoan sites. This discussion only attempts to describe our present assessment of site growth and change through time, based on the information available from a restricted group of excavated sites, a sample that clearly may present skewed information. Reasons to expect this bias result from concentrations of excavations in several locations within the canyon. Much of the information available from small sites dating between 500 and 700 results from a single site at the east end of the canyon, Shabik'eshchee Village. The A.D. 900s through middle 1000s period is primarily known from sites in Marcia's Rincon on the south side of the canyon opposite the large town site of Una Vida. Much of the information from early to middle 1100s small habitation sites was collected from a series of excavated sites near Casa Rinconada opposite the large town of Pueblo Bonito. Although a number of other sites have been excavated in areas throughout the canyon and the degree to which they evidence architectural consistency with the focal areas is known, there is no question that information from these concentrations outweighs that from other areas and influences the overall impressions of architectural changes through time. An attempt is made to address the possible restrictions of this problem in the consideration of site distribution and form in Chapter Three.

The chronological placement of these structures is a tentative one. Frequently the determination of a structure's age, particularly in the case of pit structures, is dependent upon ceramics found on or near the floors. The fact that there may have been no intervening natural accumulation between the floor surface and the trash covering it does not preclude the

existence of several types of time differentials between the use of the structure and the material within it. In general, later deposits were found within the fill of structures, but in some dated proveniences redeposition of earlier or mixed materials was encountered.

LARGE/SMALL SITE STRUCTURAL DISTINCTIONS

Architectural criteria used for the separation of large sites from small in Chaco have generally consisted of attributes such as overall site size (area), number of stories, number of rooms, individual room size and roof height, masonry type, pit structure construction, evidence of preplanning (pre-laid foundations), and ground plan configuration (Powers et al. 1983). Combinations of these are readily apparent when, for instance, either Bc 50 or 29SJ 633 (Figures A.103, A.116) is compared with Pueblo Bonito or when a plan view of 29SJ 629 (Figure A.98) is placed graphically within the boundaries of Old Pueblo Alto (Lekson 1983a). Many of the distinguishing attributes of the large sites occur, although for the most part in a restricted sense, in small houses; two examples of multiple, free-standing, multistoried small sites (Bc 50 and Bc 51) are known (Brand et al. 1937). Nonetheless, small site excavations have disclosed examples of pre-laid foundations, masonry columns, "Bonitian" style kivas, very large rooms (both storage and living), E-shaped layouts, and front enclosing walls. Additionally, small houses built entirely of core-and-veneer masonry have been excavated and tested. All of these features are incorporated in early A.D. 1100s houses, after they had first appeared in large town structures.

Large site construction remains a noticeably distinct architectural type. Even with Lekson's revised labor estimates for large site construction (1982b:IIF), there remains little doubt that relatively small increments of large site construction required more planning and more labor cooperation than did most small sites. With the possible exception of core-and-veneer examples, most small dwellings could have been completed by the few families they housed with perhaps a limited amount of short-term outside assistance.

It may be more useful to view small and large Chacoan sites as extremes in a continuum rather than entirely separate classes of structures (Lekson 1982a:IA.3), since shared attributes are more apparent than is generally acknowledged. Although most sites can be indisputably classified as large or small, some are more appropriately classified as intermediate, for example, Talus Unit 1, a multistoried, relatively large, core-and-veneer masonry structure. Despite its extensiveness, it has an unusual agglutinative character for a town of the rapid construction and the short-term use that has been suggested for it. Lekson (personal communication 1981) questions its inclusion in the same category with Chetro Ketl and Pueblo Bonito; he interprets the Talus Unit as a special road related structure.

Lekson (1982a:III) notes that the group of large sites sometimes characterized as belonging to the McElmo phase includes some very small examples, such as New Pueblo Alto (51+ rooms), thereby approaching the maximum small site size of 30 to 35 rooms (Powers et al. 1983:Table 38). This lack of pronounced distinction in size between some large and small sites is further emphasized when individual construction episodes at large and small town sites are compared with one another and with those at small sites. Interestingly, Lekson (1982a:II) has noted that roomblock additions to Pueblo Bonito and Chetro Ketl during the classic Bonito phase were often considerably less extensive than construction episodes at the smaller town sites, e.g., New Pueblo Alto, Casa Chiquita, and Kin Kletso. In fact, the numbers of individual units added to the former group may have been quite comparable to some additions noted in small sites (15 to 17 rooms) of the late 1000s.

A number of the large/small site contrasts in Chaco are based on distinctions related to masonry styles; however, in periods prior to the use of masonry (e.g., A.D. 500s through 700s) the large/small distinction is elusive definitionally. Two small sites, which are in fact rather large, are associated with this early period. Both of these, Shabik'eshchee Village (Roberts 1929) and 29SJ 423 (Windes 1975a) plus their surrounding contemporaneous structures, represent extensive settlements, each with probably more than 20 pithouses in use at the same time. Although many of the pithouses excavated by Roberts at Shabik'eshchee were not occupied contemporaneously, an intensive occupation of the adjacent ridge makes this estimate reasonable. Only a small portion of the Site 29SJ 423 was dug, and its neighboring settlements are known only from survey records. Both of these settlements have associated Great Kivas, despite the fact that the individual units within them are relatively similar structurally to those at smaller sites from this period, they maintain an apparent distinction of scale. Some might argue that the mesa top location of both of these sites accounts for our knowledge of their extent whereas other such settlements in the canyon bottom would be obscured by alluviation, etc. Further, if one were to suggest that such settlements as Shabik'eshchee Village and 29SJ 423 were actually precursors of the "towns" in Chaco, one would then have to explain why the numerous and equally extensive (or larger) communities of the 500s and 600s in the Anasazi area, many of which also contain Great Kivas, did not also develop towns as Chaco did (Baldwin 1939; Brew 1946; Gladwin 1957; Morris 1980; Wheat n.d.). Many people note that other areas of the Anasazi region contemporaneously possess an extensive or more extensive settlement than Chaco (Rohn 1981; Wheat n.d.; Schroeder, personal communication 1983).

Chapter Two

Construction

BUILDING MATERIALS

Wood

Lekson (1982a:IIB, IIE) discusses the great differences inherent in his labor expenditure estimates based on how and particularly where lumber of various types and abundance was available for large site roofing material. Little roofing timber has been collected from small sites. Although large Chacoan towns may have suffered attrition of roof timber material over the years, they retained, in a relative sense, a much larger proportion of associated materials than their small site counterparts.

The paucity of roofing materials encountered in small site excavation is probably attributable to a number of factors. Although these shallowly buried, generally single-story houses with notably smaller quantities of smaller sized roofing material may certainly have been subject to timber disintegration by natural agents, modern and prehistoric reuse of these materials seems to have been a more important contributing factor to this lack of remaining wood. Gladwin (1945:123) suggests, based on his assumption that the majority of small sites had fallen into disuse during the Bonito phase and town builders had removed all usable roofing materials, that the occupants of large sites were responsible for the timber depletion at small sites. However, it is clear that, far from being abandoned, small Chaco houses were in their period of greatest expansion during the late 1000s through middle 1100s. Although town builders (small site occupants?) may in some cases have borrowed from available abandoned small sites, it is much more likely that the most extensive reuse of these materials prehistorically was by the occupants themselves.

In viewing small site lumber use patterns, it should be noted that, small houses in Chaco were frequently remodeled over a period of several hundred years. Due to the scarcity of wood locally, presumably in the past

as well as today, builders probably salvaged as much lumber as possible. Recycling of these materials undoubtedly continued during historic use of the canyon.

Although documented for some large Chacoan sites, little is known about modern reuse of small site roofing beams. It seems unlikely that this available resource would have been overlooked by those seeking firewood or building material, either historically or prehistorically, even with a large site (e.g., Pueblo Bonito) nearby, since materials from small sites may have been more easily extricated. In addition to reuse, student excavation notes from the 1930s and 1940s indicate that more timber was present in the late 1000-1100 sites excavated in the vicinity of Casa Rinconada than has survived in the tree-ring record. For instance, field notes indicate that roughly one-third of the 19 rooms excavated at Bc 51 during the 1937 field season (Table 2.1) contained some type of wood, often described as roofing material. Table A.13 lists aboveground room specimens known from notes. Of these, only one incomplete date survives from the entire site (Bannister 1965:133; Robinson et al. 1974:11).

In the few instances in which wood specimens from nearly complete small site roofs have been identified to species from the late 1000s through middle 1100s, cottonwood, pinyon, and juniper comprised the majority of the roofing material identified. Few pieces of ponderosa, Douglas fir, or "white fir" (spruce?) have been encountered in roofing material (Bannister 1965: Tables II, III, IV). Only 30 to 35 species identified, roof beams from masonry-lined pit structures are known to the author at this writing, of which 27 specimens came from two kivas (Kiva 3 at Bc 362 and Kiva A at Leyit Kin). These structures contained 19 datable specimens of pinyon, 1 Douglas fir, and 7 unspecified pine. Ponderosa pine comprises a very low percentage of firewood or structural wood from earlier small sites (Windes, personal communication 1981), although it occurs slightly more frequently in the charcoal deposits after the middle 900s-1000. Douglas fir is also relatively rare in small site construction of any period. Like ponderosa pine, Douglas fir is extremely restricted in its distribution within the canyon today (Powers et al. 1983:290-291). White fir, or spruce has, to my knowledge, not been identified from small site materials, either from firewood and or structural remains, although the identified sample of roofing materials is extremely limited.

This small sample indicates that for either aboveground room or pit structure construction, the most locally available usable materials were relied upon most heavily. Today some pinyon and juniper of a size that could have satisfied most small site roofing needs are available on Chacra Mesa as near as the area above Shabik'eshchee. Cottonwoods grow in the wash areas. The permanence of nearby sources prehistorically is always a question, particularly with increased exploitation. Intact roofs indicate that smaller beams 8 to 10 cm in diameter dominated, with a maximum of one larger (20 cm) girder being used in a few cases. Similarly, flat roofs seem to have been more common than cribbed roofs in post-1000s pit structures, the former using less lumber than the cribbed or pithouse types. Flat roofs in structures with pilasters appear to have had longer beams

spanning the structure's width and providing intermediate support for shorter members.

If the preceding comments accurately reflect the size and type of timber being utilized in small house roofs, transportation costs would have been considerably less per unit of roof than at large sites.

Stone

Despite a characterization of masonry as "unvaried through the history of villages" (Vivian 1970a:170), there is, in fact, a considerable difference in wall construction among and occasionally within sites built after 1050. Wall treatment ranges from fine core-and-veneer to poorly made, simple construction containing seemingly dangerous amounts of mortar in proportion to stone. A stylistic and structural variability is noted between these extremes. Differences in stone to mortar ratios, and variations in wall thickness and block size are apparent in both simple and compound walls. For this reason, in offering comparative labor expenditure estimates per cubic meter for small and large site construction, a range dependent upon a few of the more noticeable of these small site variations is presented. Differences in masonry within structures are definitely present although generally less pronounced in single additions. If there is to be any credibility at all in this estimation system, particular house additions should be calculated individually, compensating for gross differences in masonry.

Construction differences present in small site masonry probably, in part, reflect the variety of the stone sources exploited. It has been suggested that building stone was collected either from nearby talus slopes, was recycled from earlier construction, or was shaped from ground stone artifacts. Any and all of these sources would account for the mixture of indurated and soft sandstones and the range in block size and surface finishes encountered. Indurated sandstone also occurs homogeneously, as in some core-and-veneer small sites, but a mixture of materials is more frequent, regardless of the workmanship reflected.

In a few cases, stone to mortar ratios were precisely calculated by reexamination of site walls, though only at Site 29SJ 633 were these estimates made during fieldwork. A series of photographs of two-foot grids and the accompanying notes, compiled by Garland Marrs in 1947 (Vivian Archives no. 296) in his examination of masonry types within the canyon, were also consulted. The ratios thus derived were averaged to obtain figures for the calculation of labor investments within room suites and households. The examples selected for these calculations were frequently the best documented and the most completely excavated.

Estimates of stone density and labor investment involved in the construction of core-and-veneer masonry small sites utilize Lekson's base figures (updated), as discussed later (see "Labor Estimates").

Spalling (direct percussion or scabbling) was the most common form of shaping building stone and is considered in the base calculation of labor investment (after Adams, personal communication 1982); however, apart from reused pieces of ground stone, only occasional pecking and grinding is present on late 1000s/1100s construction blocks. This percentage is not quantified and is not included in most preparation estimates, except in core-and-veneer examples where shaping of this type is more common.

It is assumed that, in most cases, stone was collected from nearby talus slopes, perhaps only 100 to 150 meters from the construction site, or reused within the site proper, for which no construction estimates were made. In a few sites such as Lizard House, 29SJ 1809, and 29SJ 1927, where core-and-veneer masonry is present, stone may have been quarried for construction. The regularity of the block sizes and the consistent presence of one type of sandstone included in these and in some compound masonry walls elsewhere in the canyon indicate a more orderly procurement procedure than talus collection produces.

Water and Mortar

Water availability is a consideration in calculating labor estimates. The notable scarcity and variability of water today present problems; the unreliability is assumed prehistorically. Small site wall interstices generally are comprised of more mortar in the mortar-to-stone relationship than is found in large site walls, generally approaching a 45:55 or a 50:50 ratio, in contrast to the 40:60 noted in the latter. This is considered apart from internal (and external large site?) plastering, flooring, and roofing, which would have had appreciable water requirements in either case, although relatively greater at more extensive sites.

Opinions vary as to how much water must be on hand at construction. Although there may be sufficient water in wash areas to make plaster in these locations, there is some question as to whether premixed mud would have been carried from any distance. If deep wells were built as some suggest, the transport of water in jars seems likely. When one calculates the amount of water required for foundation construction or simple wall lay-up, these estimates are staggering. To construct just the foundations at Site 29SJ 633 (Figure A.116) would require roughly 30 trips with two 10-liter jars, and this is assumed that the jars were filled to the brim on each trip and that two such vessels, regardless of weight feasibility, could be conveniently transported.

Steve Adams (personal communication 1982) notes that adobe can be premixed and if covered, can remain usable for several days. Flowing or standing water need not be present at the moment the wall is being erected. If the mortar is somewhat drier, it is easier to handle, particularly if the material contains any quantity of bentonite. Although flowing water may not be necessary, it is obvious that construction took place in periods of moisture. The few small site dates that were collected, including those

from archaeomagnetic samples (generally reflecting initial hearth firing presumably soon after construction), are grouped in time periods for which Gillespie (Powers et al. 1983:279-283) notes high annual precipitation. Generally these building episodes can only be associated with groups of wet years since annual refinement is not available.

The water procurement figures used by Lekson and Truell (Lekson 1982a; this volume), derived from a formula generated by Aaron and Bonsignore (1975), are somewhat unsettling, but more reliable estimates are lacking. The rates only include transport time over a distance and not vertical gain (Table 2.4). Limited availability of water may also be an important consideration, but is not included in these calculations since the source (wash or well) is unknown.

It should also be noted that the time required for kneading the mortar mixtures was not calculated. It is suggested that kneading time was not a major consideration in the use of Chaco mud. On-site soil has been used numerous times for construction in Chaco Canyon. Although adequate documentation is lacking, it is suggested that on-site mud may not have demanded much kneading or even appreciable mixing time; however, when the stiff gray Menefee-derived clay was used, it seems probable that mixing and kneading time may have been considerable. Toll (personal communication 1981), during his experimentation with locally available clays as potential sources for pottery manufacture, indicates that kneading may not have been as crucial as soaking.

Roof Matting

Roof matting was collected from two rooms and one pit structure at Bc 50 (Brand et al. 1937:110) and two rooms from Bc 51 (Kluckhohn 1939:33). Interestingly, all these examples were identified as Equisetum (horsetail reed), most likely E. laevigatum. These reeds grow in moist soil along streams and in damp meadows and are not found within the Park boundaries today (Cully, personal communication 1982). Roofing specimens were found tied together with yucca strands, laid at right angles and overlaying split juniper slabs, which in turn overlaid the roof beams.

Since these materials are no longer available within the central canyon area and the nearest extensive available source of this material is not known, labor estimates for procurement are difficult to compute. Cully and Toll (personal communication 1982) note that had sufficient moisture been available, these reeds may have been transplanted into wet areas and tended in order to provide a more reliable source of this material. This type of cultivation of plants to be used in building materials has been recorded in several ethnographic studies. Whiting (1939:72) notes that the modern Hopis transplant young shrubs into convenient washes for use in future roof construction.

Labor Estimates

Lekson (1982a:Section IIE, 1982b) calculates labor expenditure estimates for procurement and assemblage of large site construction materials in an effort to understand the scale of the investment represented through time in town site construction within Chaco.

Lekson (1982a, 1982b) presents potential differentials in the availability of resources, the rates of material procurement and assemblage, the number of laborers utilized, and the amount of time devoted to construction. These factors introduce considerable variability into labor expenditure estimates. Such variables and their potential importance with respect to small site building are briefly evaluated below.

Limited information is available on labor expenditure and collection of materials in situations analogous to prehistoric Chaco. For calculation of work hours required for a particular task, estimates rely heavily on information collected by Steve Adams of the Ruins Stabilization Unit of the National Park Service. The data were obtained during (1) the construction of a Tsegi phase room cluster within the Visitor Center at Navajo National Monument, and (2) stabilization activities in both Betatakin Ruin and Chaco Canyon. Adjustments have been made in some cases for differences in stone to mortar ratios within the Chacoan small sites. Additionally, Cecil Werito of the Chaco Canyon Ruins Stabilization Unit provided useful input based on his experience mending Chacoan small site walls. Labor investment data are as yet unavailable from Dennis Fenn, who constructed a modern ruin in Chaco as a test for chemical stabilization methods (Fenn and Deck 1978:25, Figures 8-11). Water, earth, and timber procurement, processing, and transport estimates were derived (after Lekson) and compared with data from several sources some of which offered less than satisfactory estimates.

The subjectivity of these labor investment estimates remains inherent, with little directly comparable information available and with the potential for high variability in numerous prehistoric factors.

The original text for this chapter has been lost. Lacking time for reparation, the following summarizes findings. Tables 2.4a-c present the basis for calculations made.

Table 2.4a presents estimates of the labor involved in the construction of simple or compound middle 1000s room walls. Based on the reworked calculations, it is suggested that it took 1/4 to 3/5ths the time to build 1 cubic meter of small site compound masonry (1:1 stone to mortar) as it did to erect a comparable volume of Classic Bonito phase wall. Adams (personal communication 1982) feels that the "fast" rate of construction indicated in Table 2.4a is the most realistic estimation; therefore, 1/4 to 3/5ths rates represent minimum and maximum figures. However, it should be remembered that these do not include corrections for reuse of wall materials within sites or from adjacent abandoned houses, either of which would

Table 2.4. Construction labor estimates.

A. Small site wall construction labor estimates (1 m3 units) (core-and-veneer masonry small sites not included.)

| | Estimate 1 | | | Estimate 2 | | |
|--------|------------|-----------|--------------------|--------------------|-------------|----------|
| | Quantity* | Rate+ | Subtotal | Qty. | Rate | Subtotal |
| Stone | 0.5 m3 | 7.3 PH/m3 | 3.7 | 0.5 m3 | 7.3 PH/m3 | 3.7 |
| Mortar | 0.5 m3 | 3.8 PH/m3 | 1.9 | 0.5 m3 | 7.4 PH/m3*c | 3.7 |
| Labor | 1.0 m3 | 6.9 PH/m3 | 6.9 | 1.0 m3 | 6.9 PH/m3 | 6.9 |
| | | | Total = 12.5 MH/m3 | | | |
| | | | | Total = 14.3 MH/m3 | | |

* Percentage of stone to mortar per m3; variable in small sites; averaged for use here.

+ Procurement, transport and preparation.

Stone: Quantity = rough averaged ratio from a few walls in 3 sites (29SJ 633, Bc 57, Bc 53); Adams' figures for reconstructed Tsegi Phase room cluster = 0.45 (stone) to 0.55 (mortar); Site 29SJ 633 in Chaco had an estimated ratio of 0.48 (stone) to 0.52 (mortar).

Rate = Adams calculated a rate of 12 stones/hr. to procure, transport and do minor shaping at Betatakin where stone was collected from adjacent talus; talus distances of 0.25 km were fairly typical for outwash plain small sites; it was estimated that there were 88 to 98 stones/m3 were typically present .

Mortar: Rate = Lekson notes that Erasmus (1965) calculated 1.9 PH/m3 for excavation with digging stick (1982a:IIE, Table E); transport is figured to be minimal since we shall assume that on-site soil was being used [not true for wall and floor plaster (see below)]; water comprises roughly 33% of mixed adobe by unit volume (Adams, personal communication 1982; Lekson 1982a:IIE, Table E). Lekson calculated 1.1 PH/m3 for water transport, distance estimated at 50 m, assuming on-site procurement (there are some serious questions with this estimate, but it was used above), 1.9 PH/m3 (dirt procurement) + 1.1 PH/m3 (water transport) = 3.0 PH/m3.

Labor: Per cubic meter of wall construction, Adams' estimated rates which included laying, minor shaping, and mortar mixing for Tsegi phase room cluster construction:

| | |
|---------|--------------|
| Slow | 11.00 PH/m3 |
| Average | 6.8893 PH/m3 |
| Fast | 5.0 PH/m3 |

At these avariable rates, with all other things equal, 1 m3 of wall took between 16.2 PH and 10.3 PH to build.

If 98 stones (instead of 88) /m3 were present, the range in rates would be between 16.6 and 10.6 PH/m3.

If the ratio of stone to mortar were altered as 0.40 (stone) to 0.60 (mortar), labor rates might alter even though these base rates would ideally represent constant output. If all other things were equal, at an average rate of construction, it would require 11.6 PH to construct 1 m3 of 40/60 wall.

Laying up wall (Adams, personal communication, 1982):

Very Slow 18.18 PH/m3

Slow 11.1 PH/m3

Fast 4 to 5 PH/m3 (4.56 PH/m3 - Cecil Werito, R.S.U. Chaco)

Table 2.4 continued.

B. Flat roof construction.

| | <u>Quantity</u> | <u>Procurement</u> | <u>Processing</u> | <u>Transport</u> | <u>Installation</u> |
|--------------------------|---|--------------------|-------------------|----------------------------------|---------------------|
| Primaries (20-22 cm) | 1 | 0.7 PH | 0.5 PH | 11.6 PH (10 km) | |
| Secondaries (7-15 cm) | 1 | 0.2 PH | 0.2 PH | dist=1.5-3 km wt=1 kg/.3048 m | |
| (aver. 10 cm) | | | | 6.56 kg/2 m length | |
| | 14 | 2.8 MH | 2.8 MH | 91.84 kg/14 2 m beams | |
| Shakes & Slabs | | | | | |
| Matting | | | | | |
| Adobe | 0.25 m ³ (2.24 on a side) 5 m ² , .05 m thick | | | | |

Primary and secondary beams are listed above although secondaries may have been used as the sole roof support members. Data (Bc 50, Room 4; Bc 51, Rooms 7, 8, 17, and 19) on maximum remaining length of beams indicates that frequently secondaries, 7 to 15 cm in diameter, were often (8 to 10 cases) in excess of 1.8 m long. Mean room width from this period was 2.18 m (n=171, sd=0.612) and in at least some cases secondaries extended the full width of the room. Length listed above is 2.2 m which may be somewhat short?

Generally there was only one primary beam, if any, within a room, located at a midpoint within the long walls, roughly 1.5 m from either end (mean room length =2.95, sd=0.816, n=171).

Secondary spacing where recorded was between 17 (Bc 50, Room 4) and 25 (Bc 51, Room 7). A mean interval of 21 cm, rounded off to 20 cm for ease in computation, was based on only 4 or 5 cases. With this spacing, an average of 14 secondaries (no primaries included) would be necessary to roof a room roughly 3 m in length (the mean room length for this period). These 14 beams would cover a floor area of approximately 7 m² if the closest beams to the walls were placed roughly 20 cm from them. Like Lekson, when mean width and length were multiplied, they did not result in the mean floor area figure arrived at from planimeter computations. For instance 2.18 x 2.95 = 6.43, not 7.07. The length width calculations included a series of small rooms from Bc 52 for which no floor areas were obtained. This indicates that for every 6.5 to 7 m² of roof 14, secondaries were required, somewhat higher than Lekson's computation of 15 secondaries for every 5 m² of roof, and he had primaries to consider in addition to these.

Cutting: Estimates for primary and secondary tree cutting were taken directly from Lekson's computations (1982a:IIE, TableB).

Processing: Lekson's estimates for removing bark and branches from secondaries were also used (1982a:IIB, IIE). End finishing of small site primaries is not known.

Table 2.4 continued.

Transport: If the load is have a 22 kg one (Lekson 1982a:IIE), one person could have theoretically carried 3.4 secondaries. If a 44 kg load, 6.7 secondaries could be carried. This estimate is slightly lower than Lekson's calculations (4 secondaries per person) due to the additional length proposed for small site secondaries. If 14 secondaries were required for the average room roof (a total of roughly 92 kg), it would require about two or four loads, respectively, depending on what weight is carried. Personally, I do not see one individual carrying six or seven beams, let alone nine, even if somewhat shorter as Lekson suggests. This is not because they would be too heavy but the load would be extremely awkward. However, two persons may easily have transported the nine beams. For this reason and due to the extra length proposed for small site roof members, I have considered seven beams a 2-person load. The distance to the top of Chacra Mesa south of Shabik'eshchee Village from Peñasco Blanco is roughly 15 km one way; however, when considering the distances between small sites within the canyon, the densest concentration during this period is around Pueblo Bonito, between 11 and 11.5 km, rounded to 25 km round trip to parallel Lekson's figures.

C. Bc 57 construction estimates.

Room Walls

| | |
|--------------------------------|---|
| Wall Length = 389.71 m | |
| Average Wall Width = 0.23 m | $389.71 \times 0.23 \times 2.00 = 179.27 \text{ m}^3$ |
| Wall Height Estimate = 2 m | $179 \times 12 = 2148 \text{ PH (average)}$ |
| Stone/Mortar Ratio = 0.50/0.50 | $179 \times 10 = 1790 \text{ PH (fast)}$ |
| (procurement included) | |

Room Roofs

| | |
|--|--------------------|
| Secondaries only - transport, | 218 PH |
| processing, procurement | |
| Roofing adobe | 22.44 PH (mix) |
| (total room fl. area = 102.03 m ³) | 122.4 PH (install) |
| (total area roofed = 5.10 m ³) | |

Pit Structure Roof Beams

| | |
|-----------------------------|----------|
| Beams | 265.6 PH |
| Adobe | 43 PH |
| | 234.5 PH |
| Roof closing (yucca, reeds, | |
| juniper bark) | |

PH = person hours.

have lessened procurement and processing time even if razing previous structures were involved.

When small site roofing material procurement figures are included (Table 2.4b), which indicate exploitation of more readily available lumber types in smaller quantities and in lesser diameters than at large sites, labor contrasts become more evident. Timber reuse is not considered.

Average roof height is estimated between 1.83 m and 2.00 m and average wall thickness, at 33 cm with compound walls, generally ranging between 30 to 45 cm. In converting linear to cubic meters, wall length is multiplied by a factor of 0.60 or 0.66 in minimum and maximum estimates. Room roof height in small sites is pure conjecture. In a possible two-story situation in Room 40 at Bc 51, the latilla holes were located 2.26 m above the first floor.

Table 2.4c offers suggested minimum and maximum estimates for a single construction episode at Bc 57 which comprises most of the site. It appears as if it may have taken between 2,500 and 3,000+ PH or roughly 200 to 250 persondays (12 hrs) to construct the eight rooms and two pit structures thought to have been originally associated with this site. Some of the roof closing was not included due to inadequate foundation.

The question of how to translate the 6.5 to 8 months it would take one person (of accomplished skills) into the time it might take three or four skilled people does not seem a simple matter of division due to obvious changes in efficiency and is not considered in the estimates presented.

Chapter Three

Form

PIT STRUCTURES

Introduction

This section presents a summary of the architectural characteristics of small sites through time within Chaco proper. In order to parallel Lekson's study of large site architecture, this discussion has been similarly divided into segments dealing with formal attributes within structural classes (i.e., pit structures, aboveground rooms, plazas, etc.), followed by a summary of site organization through time.

The term "pit structure" is used in the following text in place of "pithouse," "protokiva," or "kiva" to avoid functional judgments. The latter terms appear in the form of proper names (e.g., Kiva 12) in the tables, to conform with field designations. The first portion of this discussion deals only with "small" pit structures. (Two large 500s-early 700s circular structures designated Great Kivas have been omitted from the discussion for the moment; a twice-remodeled Great Kiva at Site 29SJ 423 and a similar example from Shabik'eshchee.)

Pit structures are regarded as circular to sub-circular, subterranean, or semisubterranean buildings. Shape is variable, with round to D-shaped predominating. Structure depth is inconsistent through time among and even within sites, a characteristic probably largely attributable to site location and depth of bedrock. Generally these features were located to the east or southeast of other site structures.

A total of 93 excavated pit structures is included in this sample. About six more do not appear in the following table since descriptive details were not available. The few structures with reliable absolute dates range in age from the late 400s to the middle 1200s. The oldest pit structure excavated appears to be Pithouse B at Site 29SJ 423 (Figure A.4). Its position beneath a dendrodated kiva indicates its age to be in the late

400s. The most recent date obtained from a small site pit structure is an archaeomagnetic sample from a kiva at Gallo Cliff Dwelling (Figure A.87), which places the initial firing at 1250 ± 56 .

Appendix A (Figures A.1-A.87) presents the plan views of most excavated small site pit structures discussed herein.

Tables 2.5 through 2.9 list the pit structures and associated architectural attributes examined in this study. The attributes monitored are drawn largely from Bullard (1962). As is apparent from the tables, some time slots such as the late 700s-early 900s and the mid-900s/mid-1000s are represented by only a few excavated examples.

Orientation

The orientation of pit structures was determined by a central axis bisecting the ventilator or antechamber and the hearth, sipapu, and north wall niche. Orientation readings (east, southeast, etc.) are made by segmenting compass quadrants in roughly equivalent increments (Figure 2.2).

Some problems have arisen because early excavators often failed either to distinguish between true and magnetic north or did not include directional notation on their maps at all. Backfilling made reexamination for orientation impossible in many cases. Only relatively reliable measurements are included in the following comparisons.

Without exception, the pit structures for which maps are available are oriented to the east, southeast, southwest, or west (Table 2.10). More specifically, it appears that from A.D. 500 to the early 700s a number of pit structures, mostly at Shabik'eshchee Village, are oriented to the southeast. Following this period, orientations tend slightly more to true south, and then during the late 1000s return to the SE orientation established in Basketmaker III times. It is not known whether this information reflects overall trends or site specific changes (Truell 1976:114-115). Hayes' suggestion that pit structure alignment is as consistently to the southeast as is small site alignment through time is not clearly apparent (1981:59-60). The variability shown in Table 2.10 is based on a larger sample of the area than that examined by Hayes.

Size

Floor areas, used as the measurement of pit structure size, are recorded in square meters. Where lateral benches are present, the actual, usable living space is calculated at floor level, interior to these features. Perhaps some structures with benches (shelves) that lacked pilasters or leaner posts on the bench surfaces had more usable space in this shelf area, but no compensation for this is made in the size estimation.

Table 2.5. 500s-early 700s pit structure attributes.

| Provenience | Dates ¹ | Floor Area (m ²) Below Bench | Depth (cm) | Bench Type | Bench Width/Ht (cm) | # | Plasters (cm) Ht. Width Depth | Vent Type | S. Recess Width/Depth (cm) | Wing Wall ² Slap ³ | Niches | Hearth LxWxH (cm) | Pits | Other Constr. | Wall Orient. (TN) | Structure Comments |
|---|--|---|-----------------|---------------|------------------------|--------------------------------------|----------------------------------|--------------|-------------------------------|---|--------|----------------------|--------------------|----------------------------|----------------------|--|
| 29SJ299 Pith. A | 620r, 611r, 612r(D) 607±29, 633±18(A) | 18.08 | 30-40 | 3/4 | 55-75 34? | - | - | - | - | 2.66 m ² ("high") | + | - | 69x6x29 | 3 bins 4+ (see comment) | E2.5°S | also 4phs(mc) 8-10phs(ante) anted=5.29 m ² |
| 29SJ299 Pith. C | (unfinished house - never used) | | | | | | | | | | | | | | | |
| 29SJ299 Pith. D | 600r, 607r(D) 685±39(A) | 12.13 | 75-82 | 3/4 | 45-125 52-58 | (2? low plaster ridges, see text) | - | - | - | 3.43 m ² ("low") | + | 3 | 58x53x18 | 8(1 in D anted.) | S16°E | 4phs(mc); 6 antech anted=5.07 m ² |
| 29SJ423 Pith. B | - | 10.8(est.) | 0.14 | - | - | - | - | Entry? | - | - | -? | - | 51x64x10 | 1 | D, Up SL | S44°E |
| 29SJ628 Pith. C | lower floor=600s upper=760±2(A) | 38.00 | 135-139 | 3/4 | 90 90 | (4 low plaster ridges, see text) | Antech. AF | - | - | (Table 2.8) ? | - | - | (Table 2.8) ? | 0 | S44°E | 4phs(mc); 1 ph(ante) anted=5.07 m ² |
| 29SJ721 Pith. C | - | 8.2 | 32 | - | - | - | AF (Entry?) | - | - | (add area) - | - | - | 60 diam. x 20 | 5 | D, Up SL | ? no fl. phs. |
| 29SJ1659 House A | - | 19.6 | 76 | - | - | - | - | - | - | - | + | - | no dimen. | - | D, Up SL | S45°E 4phs(mc) anted=6.59m ² |
| 29SJ1659 House B | - | 23.1 | 61 | - | - | - | - | - | - | - | + | - | 25 diam. x 15 | 1 bin (meal) | D, Up SL | ? 4phs(mc) |
| 29SJ1659 House D | - | 15.3 | 91-161 | - | - | - | - | - | - | (add area) + 61 cm high | - | - | 61 diam. x 30 | 1 bin | D, Up SL | S2.5°E 4phs(mc) |
| 29SJ1659 House E | - | 13.8 | 61 | - | - | - | - | - | - | (add area) +? 5 cm high | ? | ? | 61 diam. x 13 | 1? | D, Up SL | S37°E? S. entry gone, walls part. gone |
| 29SJ1659 House F House P-1 | - | 10.1 | 91 | - | - | - | - | - | - | (add area) + 8 cm high ("high") | - | - | 61x6x15 | 1 | D, Up SL | S37°E 5phs(mc); built in House P-1 anted=3.43m ² |
| 29SJ1659 House G | - | 10.2 | ? | - | - | - | - | - | - | (add area) + 76.2cm high | - | - | 71x61x30 | 1 | D, Up SL | S43.5E 4phs(mc) |
| 29SJ1659 House H | - | 11.2 | 76 | - | - | - | - | - | - | (add area) + 43.2cm high | - | - | 61 diam. x 25 | - | D, Up SL | S41°E(Slapu not in line) 4phs(mc) |
| 29SJ1659 House I | - | 7.1 | 34-46 | - | - | - | - | - | - | - | - | 1 | 61 diam. x 10 | 1 | D, Up SL | |
| 29SJ1659 House K | - | 14.6 | 76 | - | - | - | - | - | - | - | + | - | 61 diam. x 13 | +? | D, Up SL | S13.5°E 4phs(mc) anted=3.83m ² |
| 29SJ1659 House L | - | 11.3 | 61(N)- 86(S) | - | - | - | - | Entry | - | (add area) + low adobe | - | - | 61x53x20 | 1 | D, Up SL | S15°E 4phs(mc), ladder rests, entry |
| 29SJ1659 House M | - | 22.2 | 46(N)- 61(S) | - | - | - | - | - | - | (add area) + 7.6cm high | - | - | 61 diam. x 25 | 3 + 1 bin | D, Up SL | S46.5°E 4phs(mc), entry |
| 29SJ1659 House N | - | 15.2 | 46(N) | - | - | - | - | - | - | (add area) + 6.4cm high | - | - | 70x61x25 | 1 bin | D, Up SL | ? 6?phs(2 ax.); anted=7m ² |
| 29SJ1659 House O | - | 10.3 | 76 | - | - | - | - | - | - | - | - | - | 76x6x25 | 1 | D, Up SL | ? 4phs(mc) |
| 29SJ1659 House P (A.D. 700s House??) | - | 6.5 | 81 | +? | - | - | - | - | - | (add area) - 9.5cm high | - | - | 46 diam? x 20 | +? | D, Up SL | 4phs set in house walls |
| 29SJ1659 House Q | - | 15.8 | 67(W)- 74(E) | - | - | - | - | - | - | - | + | - | no dimen. 1 bin | Dirt only (meal) | E2.5°S | 4phs(mc), entry |
| 29SJ1659 House X | - | 23.4 | 46(N)- 61(S) | - | - | - | - | +? | - | - | + | - | 76 diam. x 20 | 2 bins (1 meal) | D, Up SL | S50°E 4phs(mc) anted=6.59m ² |
| 29SJ1659 House Y | - | 20.9 | 60 | 1/4 | ? ? | - | - | +? | - | (add area) + 6cm high | - | - | 55 diam. x 50 | 4 | Dirt only | 4phs(mc), 5phs(ante) remod. 2x; anted=4.12m ² |
| 29SJ2994 "Arroyo House" | ? | | | | | | | | | | | | 55 diam. x 43 | | | 2 ph(4 orig?) |

29SJ1659, House Z (tested only; floor = 35-40 cm. below ground surf.); Bc 50/51 trash mound "Bliss's Folly" and Lister's Pithouse (little data); Bc 51, Pith. A (no data)

1 D = tree rings;
only end dates,
no interior dates
given
A = archaeomagnetic
dates
(All dates = A.D.)

2 Mex.
broken at the
southern recess
indent. =
indented at the
southern recess

3 Above
floor
Subfloor

2 (where
present, area
enclosed given.
Height listed
beneath.)

(Slapus, niches and other
pits are not assumed absent
where no data were available)
i.r. = ladder rests (a pair
indicated by "pr")

4 Main entry
D = dirt
Up SL =
upright slabs

5 phs = floor
part seats;
mc = main
chamber;
anted =
antechamber
(anted = chamber
floor area in m²)

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Table 2.6. Middle 700s-middle 900s pit structure attributes.

| Provenience | Dates ¹ | Floor Area(m ²) Below Bench | Depth (cm) | Bench Type | Bench Width/Ht(cm) | # Ht | Pilasters (cm) Width Depth | Vent Type | S. Recess Width/Depth(cm) | Wing Walls ² | Slipap Niches | Hearth LxW(cm) | Other Pits | Wall Constr. | Structure Orient.(TN) | Comments | |
|---|--|--|---------------|---------------------------|---|------------------------|-------------------------------|---------------|------------------------------|---|------------------|---------------------|--|-------------------------|--------------------------|-----------------------------------|--|
| 29SJ299 Pith. E | 800±23(A) | 23.50 | 220 | 1/2 | 15-45(1);48(u) 2 level 15(1);35-85(u) | - | | AF | - | 2.20m ² 220cm ht. | ? | 60x53x43 | 7 | D | S15.5°E | partially dug; 2 of 4? phs dug | |
| 29SJ627 Pith. C | 795±42(A) | 17.19 | 249 | 3/4 (phs??) | 35 121 | - | | AF | - | 2.25m ² 225cm masonry | 2? | 70 diam x 25-32? | 16 5phs | D,M-south 6ndrg wall | S10.5°E | 4 floor phs | |
| 29SJ628 Pith. A | 830±31(A) | 13.06 | 105 | - | | - | | AF | - | 1.49m ² 42+ high | + | 64x57x36? | 7 (2 pr. l.r.) | D | S7.5°E | no phs walls flare | |
| 29SJ628 Pith. C | 760±42(A) (upper floor) | (see Table 2.5) | | 3/4 (phs) | 90 90 | (4 low plaster ridges) | | Antech- AF | - | 5.39m ² 34+cm high | - | 80-85 diam x 43? | 3 | D | S45°E | remodeled once; 4 floor phs | |
| 29SJ628 Pith. D | 770±33(A) | 15.37-15.40 | 165 | 3/4 (phs) | 90-100 102-106 | - | | Antech- AF | - | 3.59m ² 57cm(mc) 5cm antech) | 2 | 1(mc) 2(ante) | 65diam34 60diam20(ante) | 8 | D | S16°E (not exact) | antech & vent used together; 4 phs (mc); |
| 29SJ628 Pith. E | 780±28(A) | 14.25 | 135 | 3/4 | 63 93 | - | | AF | - | 2.31m ² 85cm high | + | 2?? | 67x61x22 (comments) | 8 | D | S17-18°E? | 6-7 pits = ladder rests; 2phs(N.wall) |
| 29SJ628 Pith. F | - | 8.57 | 75 | - | | - | | AF | - | - | - | - | 50 diam x 28 | 2 | D | S7°E | no floor phs; built in Pith C; |
| 29SJ628 Pith. G | - | 12.44 | 150 | - | | - | | AF | - | 2.19m ² 13cm+ high | - | 1 | 58x55x25 | 3 | D | S8.5°W | no floor phs |
| 29SJ629 Pith. 2 | (lower floor- 1st constr.) (same as upper fl.?) | 16 ± ? | 201 | | (little known of floor feature association) | - | | ? | | | | ? | 5+? | D? | vent. rebuilt | ? | |
| 29SJ721 Struct. A | 765±25(A) | 9.2 | 85 | - | | - | | AF | - | - | + | 1 | 47x42x28 (2 pr. l.r.) | 8 | D | True S? | 4 floor phs |
| 29SJ724 Pith. A | 790±37(A) 800±17(A)-cpt 5 | 22.10 | 200 | 3/4 2 benches (phs) | 40-80(upper) - 42(1), 98(u) | - | | AF | - | 4.10m ² 40cm; 5cm above fl. | + | 2 | 70x58x26 | 21? | D,M-top of vent | S7.5°W | 4 floor phs |
| 29SJ1360, Pithouse B (details not known for earlier construction) | | | | | | | | | | | | | | | | | |
| 29SJ1657 (Half House) | 691c(D)* 1 reuse beam? | 14.21 | 76 | - | | - | | AF | - | + | - | ? | 56 diam. x 41 | 4 (3 l.r.) | D | ? | 3(4?) fl. phs |
| 29SJ1659 (Shablik.) Protokiva House | - | 16.39 | 152 | full | 46 91 | - | | Antech- AF | - | + | + | - | 89x52x13 | 2 | D | ? | 4 floor phs |
| 29SJ1659 House C | - | 6.74 | 91 | full (phs) | 25 ? | - | | AF | - | ? | - | 1 | 41x30x20 | 1 bin | D | E15°S | 4 floor phs set in bench |
| 29SJ1659 House J | - | 10.3 | 122 | - | | - | | - | - | - | + | - | 46 diam. x 15 | - | D,Jacal | S22°E | line of edge phs; antech=2.01m2 |
| 29SJ1678 Judd's Pith. 2 | - | 11.82 | 139 | full? (phs) | 66 89 | - | | ? | - | - | -? | - | 56 diam. x 23 | 2 (1 l.r.) | D | ? | 2(4?) fl. phs set in bench |
| Bc 50 Feat. 5 | est 770s (Chaco Arch. #936:17) | 21.73 | ? | 3/4 | ? | - | | AF | - | ?(masonry) + ? | + | 3(4?) | 58x43? (2 bins) | 8 | D,M-ndrg walls | S25°E?? | 5 or 6 phs; bench padding |
| Bc50/51 Tr. Ml. Pith. | - | 23.76 | ? | - | | - | | ? | - | - | -? | - | 91 diam. x 30 | 1pr 1.r. 5 bins | D,Up Sl | ? | 4 floor phs; wealing bins? |
| Site#? (Bc 53?) Judd's Pith. 1 | - | 21.09 | 91 | - | | - | | ? | ? | - | - | 2 | 91 top diam. 56 bot. diam. 25 deep | 3 bins | D,Up Sl | ? | no floor phs? |
| Bc 236 Pithouse | - | 4.90?? | 122 | full? | 10 74 | - | | ? | ? | - | ? | ? | 25 diam. x 8 | 1 | D,Up Sl | ? | no fl. phs? |

1 D = tree rings;
 only end dates,
 no interior dates
 given
 A = archaeomagnetic
 dates
 (All dates - A.D.)

Max.
 brkn. =
 broken at the
 southern recess
 indent. =
 indented at the
 southern recess

upper
 l=lower

AP=above
 floor
 SP=subfloor

2 (Where
 present, area
 enclosed given.
 Height listed
 beneath.)

(Slipap, niches and other
 pits are not assumed absent
 where no data were available)
 l.r. = ladder rests (a pair
 indicated by "pr")

M=masonry
 D=dirt
 Up Sl=
 upright slabs

phs=floor
 post seats;
 n=main
 chamber;
 antech=
 antechamber
 (antechamber
 floor area in m²)

Table 2.7. Middle 900s-middle 1000s pit structure attributes.

| Provenience | Dates ¹ | Floor Area (m ²) | Depth | Bench | Bench | # | Pilasters (cm) | | | Vent | S. Recess | Wing | Stipes | Niches | Hearth | Other | Wall | Structure | Comments |
|--------------------------|------------------------------|------------------------------|---------------|-------|--------------|---|----------------|-------|-------------|------|----------------------|-------------------|--------|-------------------------------|------------------------------|-----------------------|--|---------------------------------|----------|
| | | Below Bench | (cm) | Type | Width/Ht(cm) | | Ht. | Width | Depth | Type | Width/Depth(cm) | Wall ² | | | LxWxH(cm) | Pits | Constr. | | |
| 29SJ299 Kiva B | - | 12.56 | 200 | - | - | - | | | SF | - | - | - | 5 | 56x42x21 | 6(1) | D | S9.5°E | No floor phs | |
| 29SJ627 Kiva D | - | 9.82 | 179+ | - | - | - | | | AP | - | - | + | - | 50x45x31 | 8 (1 sealing) | D | S5.5°E | No floor phs | |
| 29SJ627 Pit Struct. F | 1000±40 | 12.73 | 227 | - | - | - | | | SP-AP | - | - | 17 | - | 78x64x24 | 18 | D | S20°E | 4 phs-2 in N. wall remodeled | |
| 29SJ627 Kiva G | 1015±65(C14) lower hearth | 10.36 | 216 | - | - | - | | | AP | + | - | - | ? | 64x50x31 | 0? | D | S15.5°E | No floor phs; 1/2 dug 2 fls. | |
| 29SJ629 Pith. 2 | - | 16.15 | 201 (P1.3) | - | - | - | | | AP? - SF | - | 4.67(u) 24cm +? | 2? | 1 | 70x44x23 fl.2-45 fl.3-5 | fl.1-5 D, M-south wall | S6.5°E | 4 floor phs; | | |
| 29SJ629 Pith. 3 | 960±80(C14) | 8.39 | 172 | - | - | - | | | AP(2?) | - | - | 2? | 2 | 73x58x13 (2 lr) | 8 D, M-vent | S26.5°W or S22°W?? | No floor phs | | |
| 29SJ1360 Pithouse A | - | 12.75 | 180 | full | 35 140 | - | | | AP | - | ? | + | -? | 60x55x32 (raised floor) | 1 D, M-vent wall | S18°E | 5(6?) phs, 1 in W. wall, 2 in bench | | |
| 29SJ1360 Pithouse B | - | 12.50 | 215 | 3/4? | 20-45 110 | - | | | AP | - | 1.81m2 117cm high | + | 1 | 60x53x22 (1 lr) | 3 D, Up SL, 6 M | S124°W | 5(6) fl. phs. | | |

Bc 51, Kiva 2 = lower floor may date to this period?

THE FOLLOWING ARE DESIGNATED 900s/EARLY 1000s STRUCTURES, BUT EXHIBIT CHARACTERISTICS OF THE MIDDLE TO LATE 1000s.

| | | | | | | | | | | | | | | | | | |
|---|-------------------|-------|-----|-------------------|--------------|---|-----|----|----|----|-------------|--------------|----------|----------------------|-----------------|----------|--------------|
| 29SJ625(3-C) Kiva 1 | - | 8.34 | 213 | Full (masonry) | 31 122 | - | | SF | - | - | - | 1 N. wall | 43x34x40 | 4? | M-entire | S16.5°W | No floor phs |
| 29SJ625(3-C) Kiva 2 | - | 9.73 | 274 | Full (masonry) | 27-70 122 | 4 | ? | 76 | 61 | AF | - | - | 2 | 70x45x21 (3 l.r.) | 4+? M-entire | S16°W | |
| 29SJ750 "Leyit Kin" 1045 - all end Kiva A or near end | 1011,1035,1039(4) | 11.40 | 274 | Full (masonry) | 39 91 | 6 | 107 | 46 | 46 | SF | 86-89 28 | - | - | 102 diam x38 | - | M-entire | S20°E |

NOTE: A number of excavated pit structures undoubtedly have construction episodes dating to the early/middle A.D. 1000s, but I could find no information on their formal characteristics.

| | | | | | | | |
|--|--|----------------|--|--|--|--|--|
| 1 D = tree rings; only end dates, no interior dates given A = archaeomagnetic dates (All dates - A.D.) | Max. brin. = broken at the southern recess indent. = indented at the southern recess | upper lower | AP=above floor SP=below floor | 2 (where present, area enclosed given. Height listed beneath.) | (Stipes, niches and other pits are not assumed absent where no data were available) l.r. = ladder rests (a pair indicated by "pr") | M=masonry D=dirt Up SL= upright slabs | phs=floor post seats; ac=main chamber; ent=chamber (ent=chamber floor area in m ²) |
|--|--|----------------|--|--|--|--|--|

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Table 2.8. Late 1000s-middle 1100s pit structure attributes.

| Provenience | Dates ¹ | Floor Area (m ²) Below Bench | Depth (cm) | Bench Type | Bench Width/Ht(cm) | # Pill. | Ht. (cm) | Width (cm) | Depth (cm) | Vent Type | S. Recess Width/Depth(cm) | Wing Walls ² | Sipapu | Niches | Hearth LxWxH(cm) | Other Pits | Wall Constr. | Structure Orient.(TN) | Comments |
|---------------------------------------|---|---|----------------|--------------------|-----------------------|------------|-------------|---------------|---------------|--------------|------------------------------|----------------------------|--------|--------|------------------------------|---------------|-----------------|--------------------------|--------------------------------|
| 29SJ240 Kiva | - | est.13.70 | 164 | Pull? | 25 91 | 6? | ? | 55 | 25 | AF | - | - | ? | ? | No dimen. | 2+ | M | ? | Also has a mealing bin |
| 29SJ627 Kiva E | A.D.1085±65 (Cl4-lower hearth) | 9.92 | 213 | - | 6-10 90-120 | 6 | 263 | 5-8 | ? | SF-AP | 140-153 80 | - | - | - | Remod. | 2 | " " | S11°E | |
| 29SJ629 Kiva | - | 11.26 | 274 | - | - | - | - | - | - | AF | 104-183 60 | - | 2? | 1 | 55x64x26 | 7 | D | Due S | (see text) |
| 29SJ721 Kiva | Unfinished (never used?) | 11.34 | 107 | brkn. at S.R. | 50-60 70 | - | - | - | - | AF | 108-110 50-60 | - | - | 1 | - | 1(2?) | M-vaneer | S3.5°W | |
| Bc 50 Kiva 1 | - | 6.70 | 290 | - | 43 183 | - | - | - | - | AF | 147 61 | - | + | - | 7x31x43 | - | M | SE | |
| Bc 50 Kiva 2 | - | 11.40 | 305 | Pull | 15-31 III | - | - | - | - | AF | - | Masonry | + | 4+ | + | - | M | ? | |
| Bc 50 Kiva 3 | - | 11.34 | 274 | Pull? | 25-31 127-137 | 4 | ? | 43-53 | ? | AF | 196 206 | - | + | - | 53x51x20 | 5 | M | SE | Incised designs on bench |
| Bc 50 Kiva 4 | - | 10.12 | 274 | Brkn. at S.R. | 20-34 64-76 | - | - | - | - | AF | ? | - | - | 2 | + | - | M | ? | |
| Bc 51 Kiva 1 | - | 13.27 | 211 | Pull | 25-33 95 | 4 | 208 | ? | - | AF | 170(f)-200(bk) 78-92 | - | - | 1 | 55x48x25 | - | M | SE | |
| Bc 51 Kiva 2 | (prob. the very start of this period) | 17.24 | 292 | Pull | ? | 2 | ? | ? | - | AF | ? | - | + | 3 | 7x?x? | - | M | ? | |
| Bc 51 Kiva 3 | Unfinished? (not used in these calculations) | 13.62 | 170 | ? | 29-34 51 | 3(6?) | part. | 70-86 | 23-28 | AF | - | - | - | - | - | - | M | S? | |
| Bc 51 Kiva 4 | (unfinished- not used) | 10.81 | 137? total? | Pull | 33-45 76 | - | - | - | - | SF | - | (structure unfinished) | - | - | - | - | M | | |
| Bc 51 Kiva 5 | - | ? | 178 | + | ? | ? | - | - | - | AF | + | - | -? | - | No dimen. | ? | M | SE | Murals |
| Bc 51 Kiva 6 | - | 12.19 | 183 | Pull | ? | - | - | - | - | AF | 242 75-120 | - | - | - | No dimen. | - | M | SE | Murals |
| Bc 51 Kiva 7 | - | 12.50 | ? | ? | 24-48 100 | 4 | 128 | 71-81 | 24-48 | AF | 175 112-120 | - | - | 1 | No dimen. | - | M | SE | Murals |
| Bc 52 Kiva 2 | - | 8.83 | 213 | Brkn. 1 side | 21 82 | -? | - | - | - | SF | ? | - | - | - | 40x61 x24 to 26 | - | - | ? | |
| Bc 53 Kiva A | 1115±34(A) 1130±42(A) | 7.74 | 303 | Pull? | ? | - | - | - | - | AF | 269 102 | - | - | - | 55x64x20 | ? | M | ? | |
| Bc 53 Kiva B | (too little information) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | M | | |
| Bc 53 Kiva C | 1120±11(A) | 11.22 | 188 | Indent. at S.R. | 18-20 55-56 | -? | - | - | - | AF | 152(f)-196(bk) 47-56 | - | -? | - | 56x64x17 | - | M | ? | |
| Bc 53 Kiva D | 1150±17(A) 1150±21(A) | 11.04 | 284 | Pull | ? | 4 | 280 | - | - | SF | -? | - | ? | - | 66x64x26 | - | M | ? | |
| Bc 54 Kiva A | - | 9.24 | 132 | - | - | - | - | - | - | SF | - | - | -? | - | 48 (top) 38 (bot)x? | - | M | | Remodeled, incised notches? |
| Bc 54 Kiva B | - | 13.20 | ? | Brkn. at S.R. | 10-15 86 | ? | - | - | - | SF | + | - | ? | - | 60x? | ? | M | | |
| Bc 54 Kiva C (partially preserved) | - | 13.20 | ? | ? | - | ? | - | - | - | ? | ? | - | - | - | 18 diam.x 15 | - | M | | Remodeled twice |
| Bc 57 Kiva A | - | 8.33 | (no data) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| Bc 57 Kiva B | 1165± hearth | 10.96 | 180 | Brkn. | 20-22 91 | - | - | - | - | SF | 152 37-46 | - | + | 8 | 58x64x61 | 1 | M | S30°E | |
| Bc 57 Kiva C | 1120±42(A) hearth | 14.19 | ? | Brkn. at S.R. | 15-25 ? | - | - | - | - | SF | 121(f)-174(bk) 76 | - | ? | - | No dimen. | ? | M | S24.5°E | |
| Bc 57 Kiva D | - (notes poor) | 15.34 | ? | + | 15 ? | - | - | - | - | SF | 122(f)x137(bk) 15 | - | - | - | (no notes on floor features) | - | M | ? | |

Table 2.8 continued.

[illegible]

1 D = tree rings;
only end dates,
no interior dates
given
A = archaeological
dates
(All dates - A.D.)

```

Max.      brin. =      upper
          broken at the  l=lower
          southern recess
          indent. =
          indented at the
          southern recess

```

AP=above
floor
SF=subfloor

2 (Where present, area enclosed given. Height listed beneath.)

(Sipapus, niches and other pits are not assumed absent where no data were available
l.r. = ladder rests (a pair indicated by "pr")

Masonry
 D=dirt
 Up Sl=
 e) upright slabs

ph=floor
post posts;
ac=main
chamber;
antedc=
antechamber
(antedchamber
floor area in m²)

Table 2.9. Late 1100s-1200s pit structure attributes.

| Provenience | Dates ¹ | Floor Area (m ²) | Depth (cm) | Bench Type | Bench Width/Ht (cm) | # | Pilasters (cm) | Ht. Width | Vent Type | S. Recess Width/Depth (cm) | Wing Wall ² | Sipapu Niches | Hearth LxWxH (cm) | Other Pits | Wall Constr. | Structure Orient. (TN) | Comments |
|---------------------------------------|--------------------|------------------------------|------------|------------|---------------------|----|----------------|-----------|-----------|----------------------------|-------------------------|---------------|---------------------------------|------------|--------------|------------------------|----------|
| Bc 52 Kiva 4 | - | 9.13 | ? | + | 31 | ? | | | SF | + | | ? | No dimen | ? | M | E24.5°S | " " " |
| Bc 56 Kiva A | - | 8.55 | ? | + | (part. 36 left) | -? | | | ? | ? | | ? | No dimen | ? | M | ? | " " " |
| Bc289-Gallo Cliff Dwelling Kiva | - | 21.24 | ? | + | ? | + | (no data) | | AF? | ? | Low adobe (see text) | + | 2 (1 in 50 diam N. wall) x ? | ? | M | ? | |

THE TWO STRUCTURES LISTED BELOW ARE TOO POORLY DATED TO ATTACH TO A GENERAL TIME PERIOD: KIVA 1 UNDERLIES KIVA 2 BUT STILL MAY BE A LATE 1100s STRUCTURE; KIVA 3 IS PROBABLY EARLIER.

| | | | | | | | | | | | | | | | | | |
|-----------------|---|------|----|----|----|----|--|--|----|---|--|---|------------|---|---|---|--------------------------------|
| Bc 52 Kiva 1 | - | 9.13 | 49 | -? | | | | | ? | ? | | - | No dimen | - | M | ? | No fl. phs; fpt.-only feat. |
| Bc 52 Kiva 3 | - | 8.35 | ? | + | 24 | 88 | | | SF | | | ? | None found | ? | M | ? | May be fpt. but none noted |

Max.

1 D = tree rings;
only end dates,
no interior dates
given
A = archaeomagnetic
dates
(All dates = A.D.)

brkn. =
broken at the
southern recess
indent. =
indented at the
southern recess

AP=above
floor
SF=subfloor

2 (Where
present, area
enclosed given.
Height listed
beneath.)

(Sipapus, niches and other
pits are not assumed absent
where no data were available)
l.r. = ladder rests (a pair
indicated by "pr")

M=masonry
D=dirt
Up Sl=
upright slabs

phs=floor
post seats;
mc=main
chamber;
anted=
antechamber
(antechamber
floor area in m²)

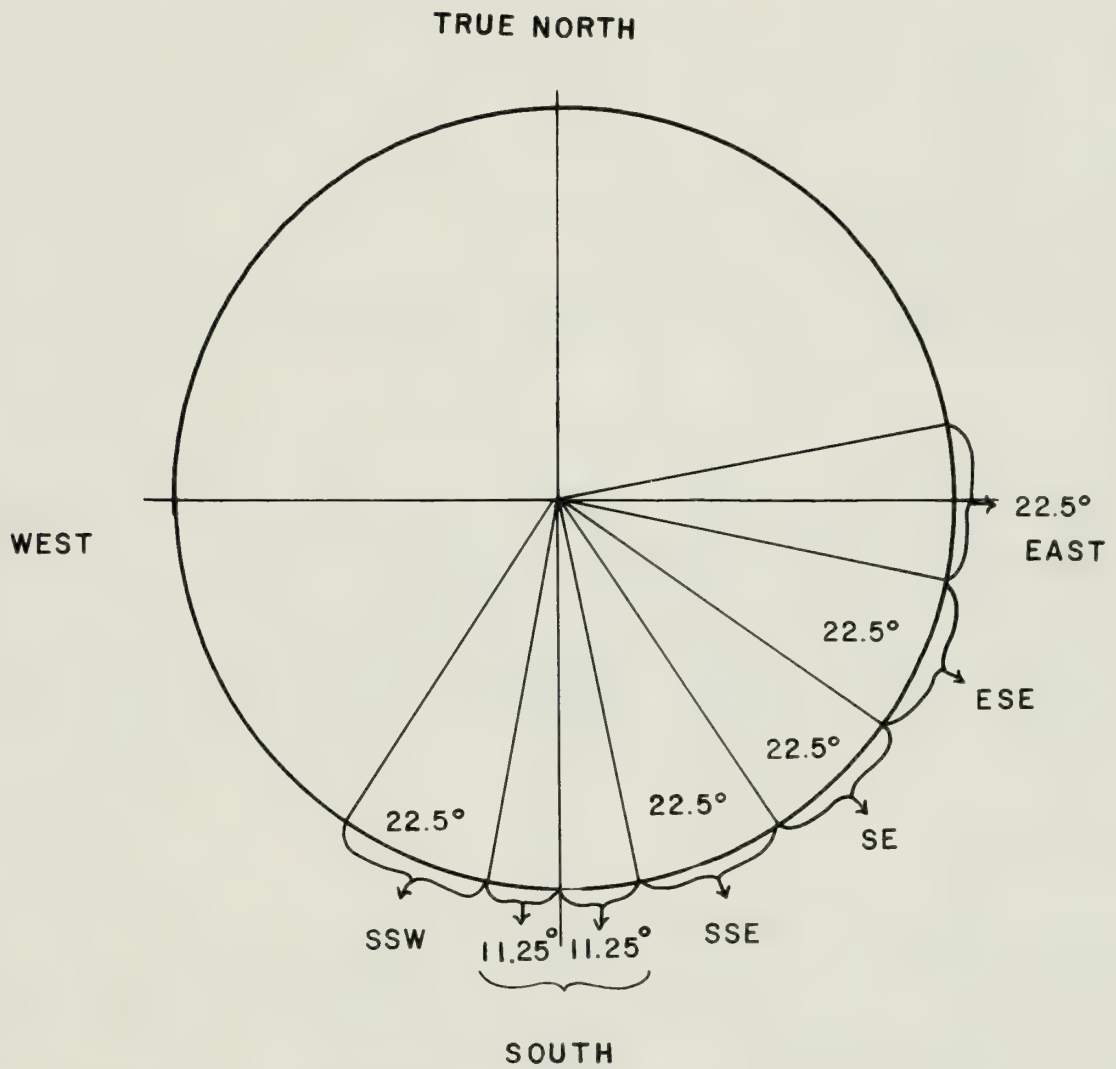


Figure 2.2. Pit structure orientation segmentation.

Table 2.10. Orientation of pit structures by time period.

| <u>Period</u> | <u>SW*</u> | <u>SSW</u> | <u>S</u> | <u>SSE</u> | <u>SE</u> | <u>ESE</u> | <u>E</u> | <u>No.</u> |
|----------------------|------------|------------|----------|------------|-----------|------------|----------|------------|
| A.D. 500-early 700s | - | - | 1 | 4 | 9 | - | 2 | 16 |
| Mid 700s-early 900s | - | 1 | 6 | 3 | 1 | 1 | - | 12 |
| Mid 900s-early 1000s | - | 3 | 3 | 4 | - | - | - | 10 |
| Late 1000s-mid 1100s | - | - | 5 | 6 | 6 | 1 | - | 18 |

* See description in text for relation to true south.

Table 2.11. Pit structure floor area through time.

| <u>Period</u> | <u>Mean(m2)</u> | <u>Standard Deviation</u> | <u>Coefficient of Variation</u> | <u>N</u> | <u>%</u> |
|--------------------------------|-------------------|-------------------------------|-------------------------------------|-------------|----------|
| 500-early 700s | 16.04 (14.28)a | 7.76 (5.24) | 48.41 (36.69) | 23 (21) | 24.21 |
| Mid/late 700s- early 900s | 14.88 | 5.67 | 38.10 | 19 | 20.00 |
| Mid/late 900s- middle 1000s | 11.85b | 2.22 | 18.73 | 9 | 9.47 |
| Late 1000s- middle 1100s | 12.09d (11.54) | 4.00 (2.88) | 33.08 (24.93) | 41c (38) | 43.16 |
| Late 1100s- 1200s | 12.97e (8.84) | 7.17 (0.41) | 55.24 (4.64) | 3 (2) | 3.16 |
| | | | | 95 | 100.00% |

a = without Pithouse F-1 at Shabik'eshchee and Pithouse C at 29SJ628.

b = without Three-C Site pit structures.

c = all possible structures.

d = without Kiva 5 at Bc 59 and Kiva C at Lizard House.

e = without the kiva at the Gallo Cliff Dwelling.

Only the size of the main chambers is discussed in this section. Antechamber floor areas and their relationship to main chamber areas will be considered later.

A wide variation in size exists in pit structures through time. While it is apparent from Table 2.11 and Figures 2.3 and 2.4 that a temporal decrease in size exists, it should also be noted that in each period there are a few larger structures that alter the mean value, as well as others that are noticeably smaller than the rest of the group. In late 1000s-early 1100s small sites, one noticeably larger pit structure with distinctive "great house" features (one foot drum, fine veneer masonry, short pilasters, etc.) is encountered occasionally and contrasts in size and form with other contemporaneous examples at the same site. For all periods considered, floor areas range from 38.0 m² (44.58 m² with the antechamber) at Pithouse C, site 29SJ 628 (Figure A.5) to 4.90 m² at a pithouse in site Bc 236.

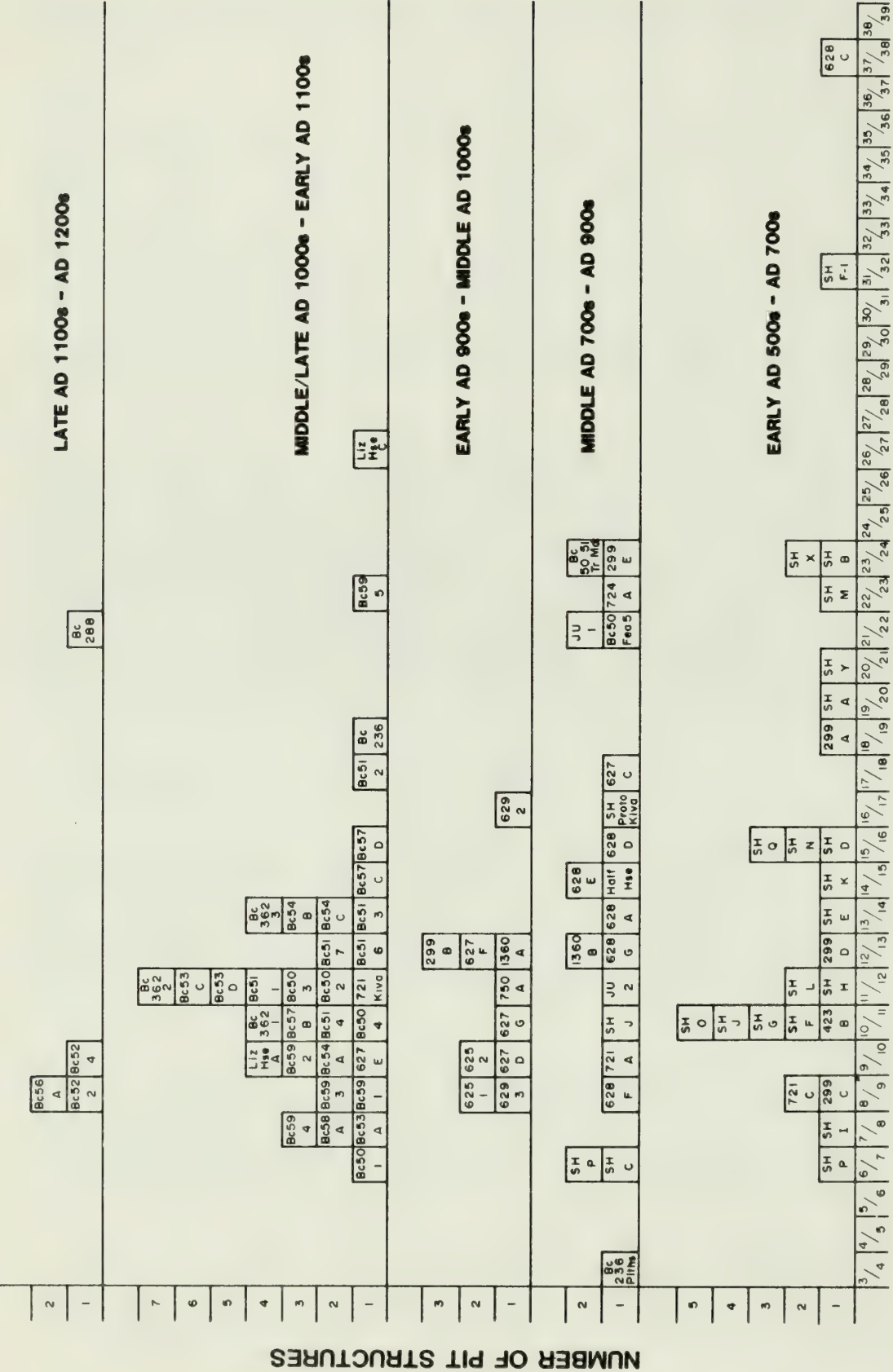
Despite these variations, the general pattern of pit structure construction appears to reflect a consistent reduction in floor area through time, which stabilizes to a certain extent in the period from the early 900s through the early 1100s (Table 2.11). A lack of chronological control prevents more sensitive examination of fluctuations within time periods. This limitation makes it impossible to differentiate between changes in construction style within the period (or within particular sites) and a lack of homogeneity within the period as a whole. A mixture of these factors may be responsible for the range of structure size encountered at Shabik'eshchee Village during the 500-800s.

Shape

Figures 2.5 through 2.8 show the shapes of some of the excavated pit structures, grouped by time period. During the A.D. 500-700s, structures are circular or rectangular/square with rounded corners, or D-shaped, the latter first appearing in the early 600s. The D-shaped pit structures were not noted by Bullard (1962) in his discussion of Chacoan pithouse shape since his assessment was based on examples from Shabik'eshchee Village where this house form was not encountered.

Although circular and rectangular/square houses continue to be present in the 700-900 period, well-dated examples from the middle 700s - early 800s tend to be D-shaped. (There is probably a gap in our data.) The D-shape continues in use from the 600s through at least the early 800s. No excavated pit structures date clearly to the late 800s, and very few are assignable to the early 900s.

The three structures thought to have been associated with the early 900s all have different shapes. Pithouse 3 at 29SJ 629 (Figure A.48) is square with rounded corners; Kiva A at 29SJ 1360 (Figure A.49) is relatively circular; and Pithouse 2 at 29SJ 629 (Figure A.47) is a somewhat unusual, vaguely D-shaped house with two large outward-tending bulges along



SH Shabik'ashchee

Figure 2.3. Pit structure size by time period.

[illegible]

Figure 2.4. Dated small site pit structures.

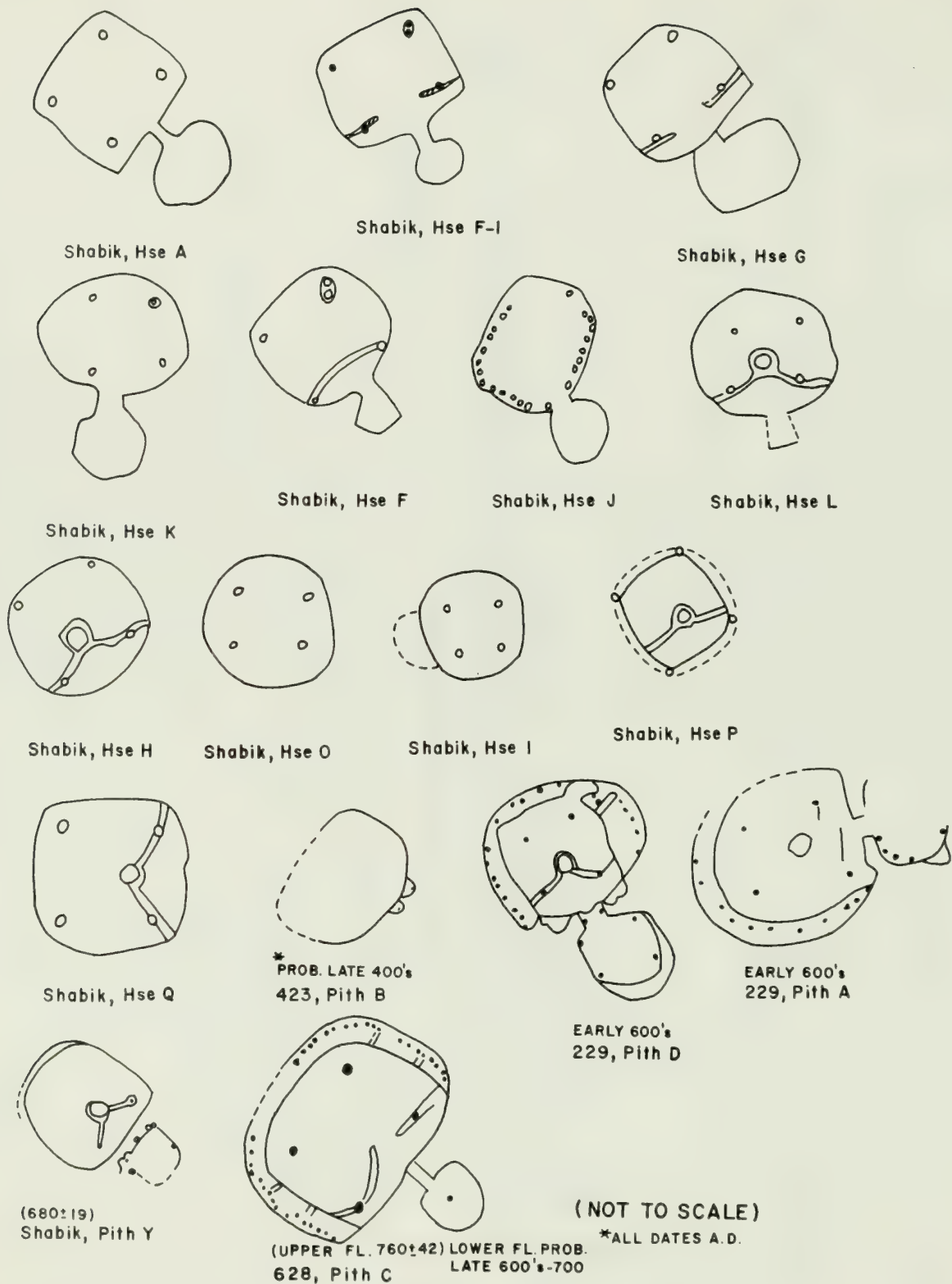


Figure 2.5. A.D. 500-early 700s pit structure shape.

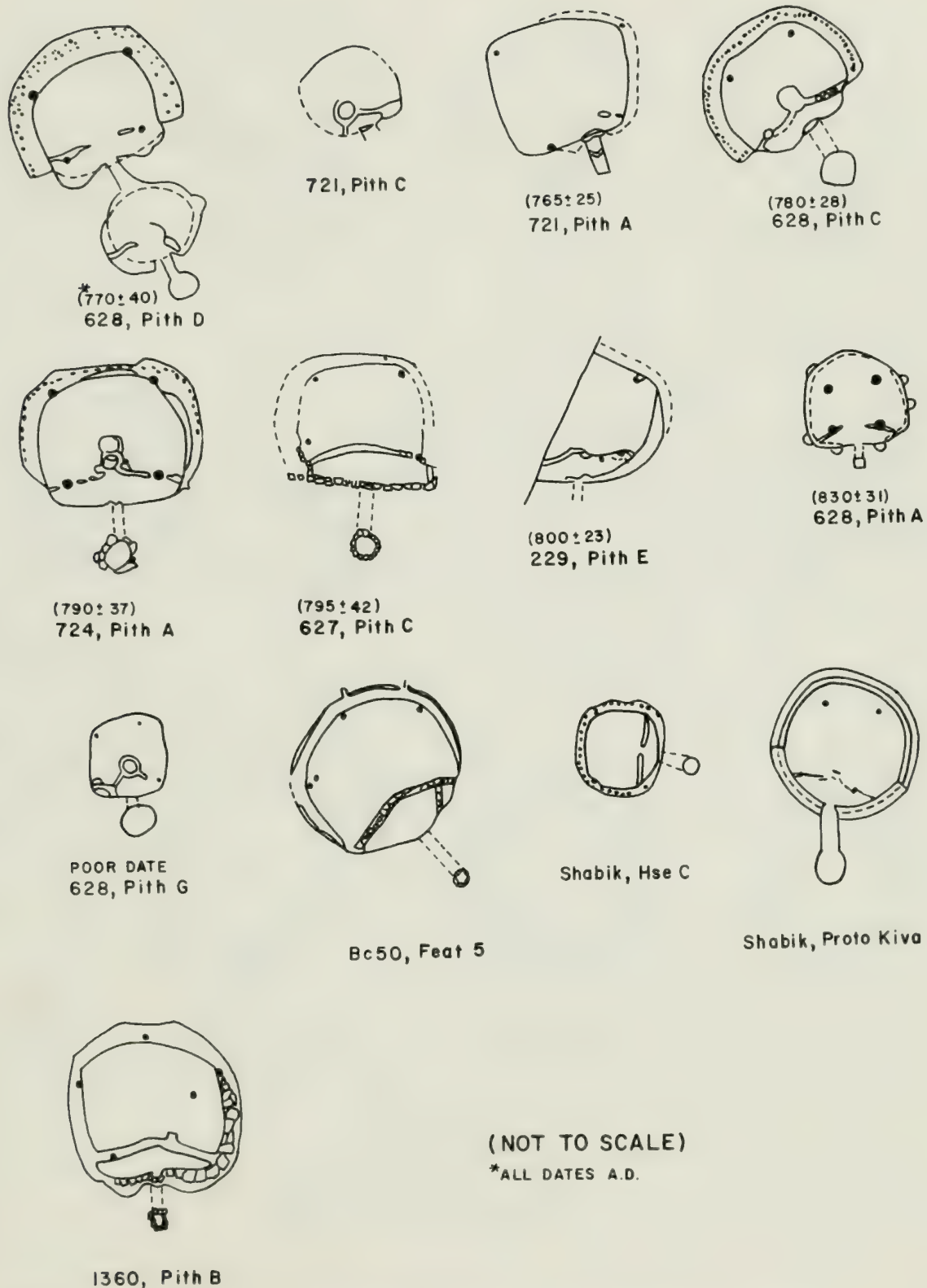


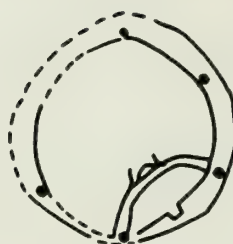
Figure 2.6. Middle 700s-early/middle 900s pit structure shape.



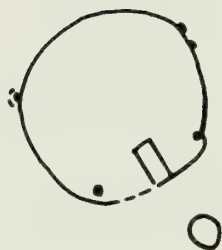
629, Pith 2



629, Pith 3



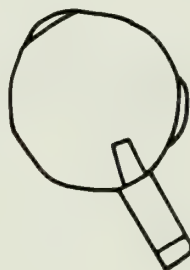
1360, Kiva A



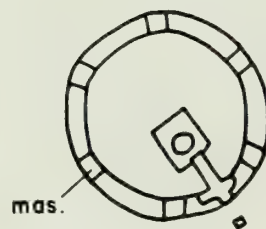
627, P. St. F



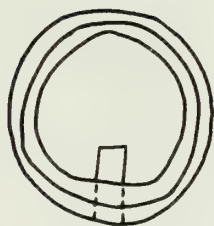
627, D



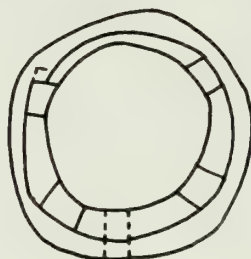
299, Kiva B



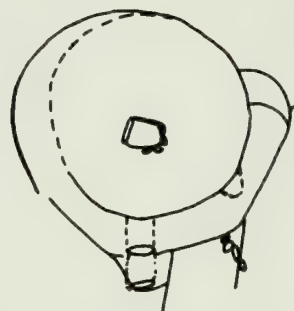
Leyit Kin, Kiva K



625, Kiva 1



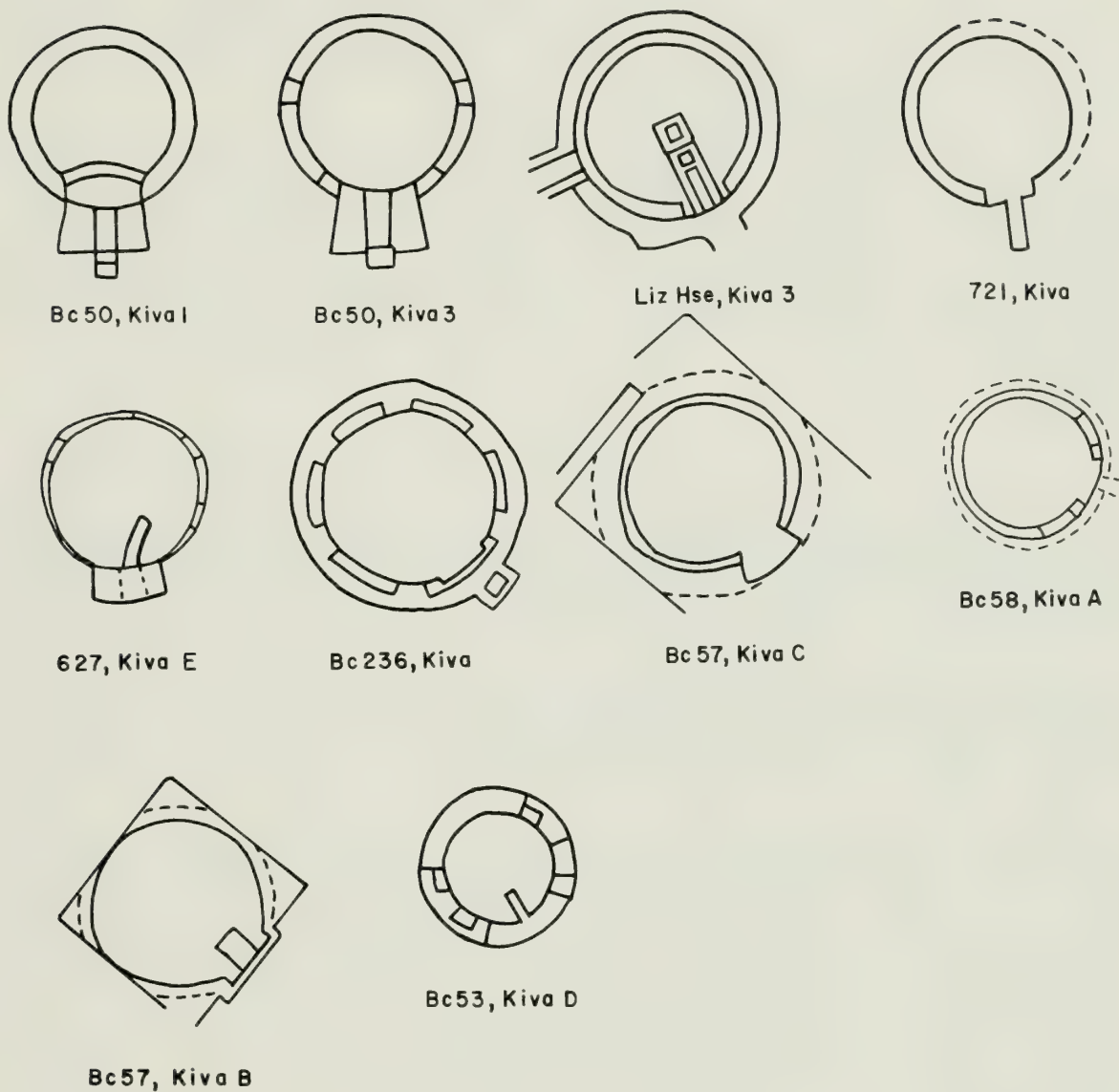
625, Kiva 2



627, Kiva G

(NOT TO SCALE)

Figure 2.7. Late 900s-mid 1000s pit structure shape.



(NOT TO SCALE)

Figure 2.8. Late 1000s-early/middle 1100s pit structure shape.

the south wall. By the late 900s or early 1000s a regular circular form emerges and continues in use throughout the duration of Anasazi pit structure construction. These structures become fully lined with masonry, while at the same time there is a decline in floor area.

In later periods, these structures are enclosed in square masonry walls, some constructed intentionally to surround the structure and others resulting from remodeling activities. The first occurrence (late 1030s-early 1040s) of a blocked-in structure is at Leyit Kin where Kiva A (Figure A.53) was built into preexisting room walls however, so there is some question as to the accuracy of these dates. This enclosed feature is known more frequently from the late 1000s-middle 1100s period.

Depth

Pit structure depth, recorded from the level of the original ground surface, was determined for only 74 of the 92 structures within the excavated sample. In cases where remodeling was apparent, only measurements calculated from the surface at the time of construction were available.

The distance to bedrock is undoubtedly a major determining factor in the depth of prehistoric pit structure excavation. Where caprock was shallow, it seems to have been more influential in pit structure depth than stylistic preferences or climatic considerations.

Table 2.12 and Figure 2.9 illustrate pit structure depth by general time period, the well-dated structures offering only a limited amount of data in this case. Table 2.13 separates maximum depth values into the categories used by Bullard (1962:125). There appears to be a continuous increase in pit structure depth through time, stabilizing sometime during the early 1100s. When physical locations of the excavated sites (as recorded by the Chaco Center survey) are compared with general temporal associations (Table 2.14), it becomes apparent that this picture is probably a mixture of our sampling bias and practical considerations of the prehistoric builders. The majority of the 500-700s data results from Shabik'eshchee Village and another Basketmaker III site (29SJ 423) both of which are located on mesas. Although in some cases a great deal of effort was expended in the construction of the pit structures in such locations, most of them were shallow. The Chaco Center survey notes a more consistent identification of sites from Basketmaker III on the mesa tops (Hayes 1981:26); however, this does not necessarily mean that these locations were favored, but rather that these mostly buried sites, which evidence scant surface remains, were more easily identifiable in areas of shallow overburden (1981:36).

Table 2.14 points out that most of the excavated 500-900 pit structures are in "mesa/bench" and "ridge" locations. Although deep (D) and very deep (VD) pit structures were uncovered in "floodplain" and "slope" areas, it is interesting to note that no shallow pit structures from any period were encountered there. Pit structures described as D and VD, the

Table 2.12. Pit structure depth through time.

| <u>Period</u> | <u>Mean (m.)</u> | <u>Standard Deviation</u> | <u>Co-efficient of Variation</u> | <u>N</u> | <u>%</u> |
|--------------------------|------------------|-------------------------------|--------------------------------------|-----------|--------------|
| 500s-early 700s | 0.72 | 0.32 | 44.44 | 22 | 28.57 |
| Mid/late 700s-early 900s | 1.40 | 0.53 | 37.86 | 17 | 22.08 |
| Mid/late 900s-mid 1000s | 2.07 | 0.31 | 14.98 | 9* | 11.69 |
| Late 1000s-mid 1100s | 2.24 | 0.59 | 26.33 | <u>29</u> | <u>37.66</u> |
| | | | | 77 | 100.00 |

Late 1100s-1200s (not included - only one case)

* Pithouse 2 of 29SJ629 not included since first floor depth is not indicated; Three-C Site (29SJ625) pit structures not included in this or the subsequent time period.

Table 2.13. Maximum depths of pit structures by relative time period.

| <u>Period</u> | <u>Shallow*</u> <u>(0-74 cm)</u> | <u>Medium</u> <u>(75-129 cm)</u> | <u>Deep</u> <u>(130-200 cm)</u> | <u>Very Deep</u> <u>(200+ cm)</u> | <u>N</u> | <u>%</u> |
|----------------------|-------------------------------------|-------------------------------------|------------------------------------|--------------------------------------|----------|-------------|
| 500s-early 700s | 11 | 9 | 2 | - | 22 | 28.21 |
| Mid 700s-early 900s | 1 | 8 | 6 | 3 | 17 | 21.79 |
| Late 900s-mid 1000s | - | - | 4 | 5 | 9+ | 11.54 |
| Late 1000s-mid 1100s | - | 4 | 7 | 18 | 29 | 37.18 |
| Late 1100s-1200s | - | - | - | 1 | <u>1</u> | <u>1.28</u> |
| | | | | | 78 | 100.00 |

* = arbitrary depth separations after Bullard (1962:125).

+ = Three-C Site (29SJ625) pit structures not included in this or the following period due to questionable temporal placement.

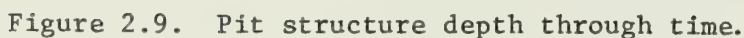
Table 2.14. Physical locations of pit structures within temporal groups.

| Location | A.D.500-700 | Mid 700s-early 900s | Mid 900s-mid 1000s | Late Mid 1000s-1100 |
|----------------------|---|--|---|--|
| Mesa/ Bench | 29SJ1659, Houses A,B, D-I,K-Q,X,Y,Z (18) | 29SJ1659, Proto- kiva & Houses C, J (3) | | 29SJ240, Kiva (1) |
| Talus/ Cliff | | | | Bc 52, Kiva 2 Bc 54, Kiva A (2) |
| Ridge | 29SJ299,A&D 29SJ721,C (3) | 29SJ299, Pith. E 29SJ721, Pith. A 29SJ724, Pith. A (3) | 29SJ1360,Pith.A,B 29SJ299, Kiva B (3) | Bc 57, Kiva B Bc 58, Kiva A 29SJ721, Kiva (3) |
| Slope/ Floodplain | 29SJ628,C (1) | 29SJ627, Pith. C 29SJ628, Piths. A, D,E,F,G 29SJ629, Pith. 2* Bc236, Pithouse Judd's Pith. 1&2 Half House, Pith. (11) | 29SJ627, Pith. F, Kivas D & G 29SJ629,Piths 2,3 Leyit Kin, Kiva A (Three-C Site not included) (6) | 29SJ627, Kiva E 29SJ629, Kiva Bc 50, Kivas 1-4 Bc 51, Kivas 1-6 Bc 53, KS. A,C,D Bc 59, KS. 2,4,5 Bc 236, Kiva Bc 362, Kivas 1,3 Lizard Hse,Kiva C Leyit Kin,Kiva B (23) |
| <u>TOTALS</u> | Mesa=9S,8M, 1D Ridge=1S,1M n=22 | Mesa=2M,1D Ridge=1M,1D,1VD Slope=5M,4D,2VD n=17 | Mesa=0 Ridge=2M,1D Slope=2D,4VD n=9 | Mesa=1M Talus=1M,1VD Ridge=2M,1VD Slope=7D,16VD n=29 |

S=shallow (0-74 cm); M=medium (75-129 cm); D=deep (130-200 cm); VD=very deep (200+ cm).

* Pith. 2, Site 29SJ299, lower floor listed here as very deep, based on the assumption that structure walls were the same height.

Note: Late 1100s-1200s not included, too little data.



majority from slope or floodplain areas, dominated the excavated sample from the early 900s on through at least the middle 1100s. It may be that the structural reinforcement supplied by the complete masonry lining of pit structures beginning in the late 1000s facilitated a greater depth of construction. This trend toward deeper pit structures up to a stable height of 2-2.25 m in the late 900s or 1000s may be, in part, for purposes of improved insulation (Farwell 1981:43-47). This suggests year-round use despite the relocation of most fixed domestic features to aboveground rooms after the 1000s. Disregarding seasonal use complications, a question remains as to whether there actually existed any consistent, direct relationship between pit structure depth and climatic conditions across the Anasazi region.

For some groups of structures, such as the houses at Shabik'eshchee Village, there is a relatively consistent differential between the level of the floor adjacent to the antechamber and/or entry and that of the slightly lower main chamber floor. The slight slope upward in the southern portion of the main chamber floor seems to have been an adjustment made prehistorically to allow the chamber floor to meet the raised floor of the adjacent antechamber and the connecting passageway. This slightly inclining floor is neither noted in all pit structures contemporaneous with Shabik'eshchee, nor is it recorded in later structures that lack lateral entries.

Several houses with ventilators of subsequent periods, such as Kiva A at 29SJ 1360 and Pithouse C at 29SJ 627, have raised areas behind the wing walls, possibly slightly homologous with antechambers in pre-existing pit structures. Antechamber floors of the 500s to 700s, if raised, are generally elevated to approximately 10 cm above the main chamber floor. In Kiva A at 29SJ 1360, the wing wall area is 20 cm above the rest of the structure floor, an exceptional height leading to its designation as a platform (McKenna 1981b:78).

Unlike some pit structures associated with Great Houses (Lekson 1982a: III.C.3) built on or above the existing ground surface with enclosing walls to create the impression of being subterranean, small site pit structures, whether enclosed or not, were typically excavated a short distance below the surface regardless of bedrock depth.

Roof Construction

Since very little wood has been recovered from small site pit structures, specific understanding of their roof construction is restricted largely to inference, based on the pattern of reuse of identifiable post-holes. It is generally agreed that prehistoric reuse of wood was common due to the lack of local availability. This reuse of material from prehistoric sites, at least the large ones, continued in the canyon during historic times.

A.D. 500--Early 700s

In the main chambers of pit structures built between about 500 and 700, the pattern of four floor postholes, in a relatively symmetrical relationship, is most common (Figure 2.5). The distance of these seats from the external walls is inconsistent during this period; in one case (House P at Shabik'eshchee Village) they were actually incorporated into the walls, a feature that becomes common in the succeeding period. (House P is not well dated and may actually be a late 700 or 800s house.) The only major deviation from this form of posthole pattern is that encountered in House J at Shabik'eshchee, a jacal structure possibly dating to Pueblo I times (Roberts 1929:41-43).

There is nothing to indicate that the roof configuration during this period was unlike that illustrated and described by Roberts in his Shabik'eshchee Village report (1929:Figures 2, 11-13), with leaning members either being footed on the top of the bench within the structure or on the surrounding ground surface where indications of their positions have since been obliterated. No additional information on the exact configuration of the superstructure of the passageway between the antechamber and the main chamber has been encountered in the Chaco Center's explorations. The wall on either side of this passage is the most common location for early examples of masonry, either for purposes of original reinforcement or to stabilize remodeled portions of this area.

Posthole patterns indicate that there was some variability in the configuration of the antechamber roof at this time. The pattern ranges from one of no postholes, as in most Shabik'eshchee houses (possibly a matter of recording), or a single central posthole (Pithouse C, 29SJ 628) or a set of four symmetrically arranged post seats as those in main chambers (Pithouse D, 29SJ 299) to a number of postholes mainly clustered along the wall adjacent to the main chamber (Pithouse A, 29SJ 299) (Figures A.1, A.3, A.5, A.7-A.24). There is a series of possibilities suggested by these patterns, varying from a teepee type roof or one like that of the main chamber, to a slanted roof with the high side adjacent to the main chamber, but no actual remains of any of these were encountered.

Only one pit structure of this period, House L at Shabik'eshchee Village (Figure A.17), has ladder holes indicating a roof entry, although lateral entry in this case was also possible since a short passage was found.

Middle 700--Middle to Late 900s

The pithouse roof pattern described by Roberts (1929) and discussed briefly above continued in use through the middle to late 900s (Figures 2.5, 2.6). During the first portion of this period, benches, with or without leaner postholes in evidence, are extremely common, but by about the

middle 900s, these seem to have disappeared. It is assumed that prior to the disappearance of the bench, secondary leaning posts were either seated upon the bench surface or on the surrounding ground surface at a low angle similar to that suggested for the previous construction period.

During this period, and accompanying a reduction in structure size, major postholes were gradually moved farther and farther from the center of the house (Pithouse C at 29SJ 627, Pithouse E at 29SJ 299, House C at Shabik'eshchee Village), and were ultimately incorporated into the external walls and bench face (Pithouse D at 29SJ 628; Pithouse A at 29SJ 724; kivas at 29SJ 1360; Pithouse 2 at 29SJ 629; Pit Structure F at 29SJ 627; Pithouse A? at 29SJ 721; and perhaps House P at Shabik'eshchee Village). One exception to this apparent trend is Pithouse 2 at 29SJ 629, which despite its large size, has two of the major postholes set into the north wall (Figure 2.7; Figure A.47).

Most antechambers had been converted to ventilator shafts by this time. Nonetheless where benches were present, they remained, for the most part, discontinuous along the south side of the structure. The exact construction of the roof in this area remains unknown.

Early to Middle 1000s

Shortly after the disappearance of the bench in the middle to late 900s, floor postholes also disappeared. With the absence of these features and a decrease in floor area, it is assumed that there was a change to a form of "flat-laid" roof with beams spanning the entire area without intermediate support. Several layers of roofing material laid at right angles to one another may have been present.

Late 1000s--Middle 1100s

Pit structures with pilasters. In the late 1000s, benches were again in use. Masonry pilasters are present in 16 of the 40 to 41 structures excavated from the late 1000s through the middle 1100s. (Little information is available from the late 1100s-1200s period.) Pilasters range in number from two to six, most commonly four. Three examples have four symmetrically placed pilasters, a pattern also noted outside of Chaco (Reed 1976:35), which would indicate flat, cribbed, or pithouse roof types. Pilaster placement in a number of other cases does not parallel the pattern of equidistant spacing typical of postholes in earlier periods. In such situations, two pilasters were placed on either side of and immediately adjacent to the ventilator opening or southern recess, while the remaining two were situated almost opposite one another just north of the widest diameter of the structure (i.e., Kiva 3 at Bc 50; Figure A.58b). This trapezoidal arrangement of four pilasters (the most common encountered in Chacoan struc-

tures) has been noted in Mancos Canyon pit structures, described by Farmer (1977:289-290) in kivas, and by Gillespie (1976:104-105) in earlier pit-houses in the same area. In a single interesting example, all four pilasters are clustered close to the east-west bisecting line.

The original height of the pilasters in most Chaco pit structures is unknown. Height was often incompletely preserved or was not recorded at excavation. (Known existing heights are listed in Tables 2.7 through 2.9.) Occasionally excavators noted that pilasters extended up to or near the existing wall height. Only one example of a pattern of six low pilasters, resembling that in Classic Bonito phase large site pit structures, was found in a small site example (Figure A.81). The Bc 236 kiva, associated with original construction at the site, has pilasters somewhat taller (38 cm) than the usual height of those recorded for Pueblo Bonito and Pueblo del Arroyo pit structures by Judd (1964:178; 1959:59), generally between 15 and 25 cm. Masonry of the aboveground rooms, associated with Bc 236 kiva, is core-and-veneer.

Some variability is apparent in pilaster depth, generally dictated by the width of the bench, which averages between 20 and 50 cm. In a number of cases, the front of the pilaster was set back several centimeters from the edge of the bench. Occasionally pilasters are extremely narrow (6-13 cm), appearing functionless as roof supports (Kiva E at 29SJ 627, Kiva 4 at Bc 59; Figures A.55, A.79).

Among the few roof timbers recovered from the pit structures containing pilasters were vigas, identified as cottonwood, pinyon (Kluckhohn 1939: 35, 36) or simply "pine" (Dutton 1938:23). Pilasters would provide a shorter spanning distance for timber, yet it is interesting how rarely ponderosa is encountered in roofing material of any type from small sites, perhaps indicating exploitation of the more readily available wood sources.

Roof configurations encountered include a possible cribbed example from Kiva A at Leyit Kin, as suggested by the presence of six pilasters and the uniformity of beam size (Dutton 1938:23). At the same site, remains in Kiva B indicate the presence of a flat roof with the asymmetrical four-pilaster pattern described above and the presence of a long east-west trending girder, overlain by smaller poles running at right angles. Fragmentary roof remains were also recovered from kivas 1, 2, and 6 at Bc 51; Kiva D at Leyit Kin; Kiva 2 at Bc 59; and Kiva 2 at Bc 50, but little can be projected about their original form. Based on the Kiva B example at Leyit Kin, it appears as if the asymmetrical four-pilaster pattern is associated with a flat roof type. It seems possible that the placement of a girder between the two northern pilasters, farthest from the vent tunnel opening, and almost opposite one another near the center of the structure, might have provided support not only for the central roof load but also for a point of stress adjacent to the roof smoke hole where the entry ladder rested.

The predominance of the use of this pattern of four unevenly spaced pilasters suggests that the use of the cribbed roof was infrequent in small

site pit structures. Already noted exceptions might include Kiva A at Leyit Kin (Dutton 1938:23; Figure A.53) and the initial construction of the kiva at Bc 236 (Bradley 1971:Plate 9; Figure A.81), both of which contain six evenly spaced pilasters. Possibly several basal courses were cribbed, and in turn overlain by a flat roof as described by Cattanach at Long House (1980:113-115), and earlier by Nordenskiöld (1893:15) at Square Tower House in Mesa Verde. It remains unclear whether the low pilaster Bc 236 roof was cribbed from that height or not. No bench wainscoting was encountered in these cases, and it appears that at least partial cribbing may have extended for several courses above the pilasters.

Pit structures without pilasters. A number of masonry-lined pit structures associated with the early 1100s construction period lack pilasters, despite a ubiquitous occurrence of benches (Table 2.15). In such cases where no postholes are present, it is assumed that flat-laid roofs were used. The above-bench structure diameter ranged from 3.27 m to a maximum of 5.79 m in Kiva C at Lizard House. Maxon notes two pairs of decayed stringers spanning the northern and southern portions of this kiva, and comments that Kiva C was "probably roofed the same way as ordinary living rooms" (1963:15). The use of long spanning girders means that relatively large structures could have flat roofs if the configuration were similar to that encountered in Kiva C. A portion of one of the girders from Kiva C was identified as ponderosa pine (Bannister 1965:135), a species rarely encountered in small site roofing. The use of this material may have been necessitated by the large structure size, although the overall Bonitian character of this construction episode at Lizard House is also notable.

It is difficult to determine how much of a major beam of a given diameter must extend beyond the external walls in order to support the weight of a typical flat roof. The only example in our records of a beam found in association with the walls is at Kiva 1. The estimated maximum diameter of Kiva 1 at Bc 51 above the bench is only 3.05 m, while the remains of a beam 4.67 m in length (12-13cm in diameter) were recovered from the structure (Kluckhohn and Reiter 1939:35). If this beam was used as a roof member and the overhang was equal, the beam would extend 81 cm beyond each wall.

Generally, the main beams range from 8 to 15 cm in diameter, considerably smaller than those encountered in large site pit structures.

Roof Height

Pit structure depth is affected by location and differential preservation. The average standing wall height in pit structures after the middle 1000s is 2.37 m, with maximum heights about 3 m.

Intact prehistoric Anasazi roofs of comparable age with those considered here are few in number and have generally been found in caves or overhangs. Cattanach recovered two partial roofs from kivas I and Q at Long House at Mesa Verde (1980:79-80, 113-115), the bases of which were

Table 2.15. Pit structure bench type by relative time period.

| <u>Period</u> | <u>Absent</u> | <u>3/4</u> | <u>Full</u> | <u>Other</u> | <u>Total N</u> |
|-----------------------------------|--------------------|------------|-----------------|-------------------------------|----------------|
| 500s-early 700s | 18 | 3 | - | 1 (29SJ1659, Pith Y - 1/4) | 22 |
| Middle/late 700s- early 900s | 8 | 6 | 4 | 1 (29SJ299, Pith E - 1/2) | 19 |
| Middle/late 900s- middle 1000s | 6 | 1 | 2 ^a | - | 9 |
| Late 1000s-mid 1100s | 3 ^b | - | 32 ^c | - | 35 |
| Late 1100s- 1200s | (very little data) | | | | |
| | <hr/> | <hr/> | <hr/> | <hr/> | <hr/> |
| | 35 | 10 | 38 | 2 | 85 |

a = Three-C Site examples omitted.

b = Kiva at 29SJ629, Kiva 3 at Bc 59, Kiva A at Bc 54.

c = 10 of these are broken at the southern recess; 1 is too narrow to matter; 4 are indented slightly at the southern recess; 12 are actually full or continuous despite the presence of a southern recess; and 5 are continuous?

situated about 1.98 m above the floor, and the thickness of which generally ranged from 61 to 76 cm. Roofs from Long House as a whole included both flat and cribbed, the latter extending several courses upward and overlain by flat laid poles. There was little variability between the two roofing styles with respect to wall or roof height. Nordenskiöld (1893:57-58) reported intact cribbed and entirely flat roofs from Square Tower House at Mesa Verde, but failed to mention the height of either. He did note that the walls of a well-preserved pit structure in a Cliff Canyon ruin (1893:15) extended 2 m above the floor surface. Morris (1919:169) described a collapsed(?) cribbed roof from a kiva at Eagle Nest House in Lion Canyon, which apparently originally stood 2.52 m high (to the top?) (1919:Pl. 35b). The number of pilasters is not noted. Additionally, Sender (1975:187, 191, Figure 9) reported a series of in-place beams from Kiva 2 at Morris' Site #5 in Lion Canyon, which rested 1.85 m above the floor. This structure is of particular interest, since, despite the existence of six tall pilasters extending to 89 cm above the bench, the roof appears to have been largely flat-laid with the thick pilasters accommodating a series of logs placed side by side. Above these initial parallel beams, Sender suggested the existence of a series of lighter poles covered with layers of bark and adobe (1975:191).

Although most of the structures previously listed are not in the Chaco area and some of the examples are later in age than those in the canyon considered here, it is apparent that the maximum wall heights of a number of the masonry-lined structures are quite close to the roof height measurements of intact examples elsewhere in the Anasazi region. Interestingly, the mean depth of pit structures in Chaco with or without pilasters is identical.

When mean wall height of the 1000-1100s structures is compared with that of large Classic Bonito phase town kivas (eliminating Tower Kivas), the latter average 64 cm (slightly over 2 feet) deeper than small site examples (small sites $n=24$, $\text{mean}=2.37$, $\text{sd}=0.54$, $\text{cv}=22.78\%$; large sites $n=33$, $\text{mean}=3.01$, $\text{sd}=0.48$, $\text{cv}=15.94\%$). This difference may be related to the type of roof construction. Lekson (1984:32-34) has suggested that the kiva roofs were generally flat, rather than cribbed. If, however, the large site pit structure roofs were cribbed from low pilaster height for any distance before the flat-laid members had been placed upon them, not only would a great deal of lumber be consumed in this process, but the very gradual height increase gained by successive courses of cribbing would result in greater structural depth.

Wall Construction

Upright Slabs and Native Soil

During the 500s to early 700s period, the subterranean portions of the

pit structure walls primarily consisted of native soil or native soil lined with large, upright, basal slabs, generally set with their flat, wide surfaces facing the interior of the structure. Walls of either type often have remains of tan to brown wall plaster, the source of which may have been near many small site locations in the outwash plain areas. None of the house wall plaster from this period evidences any painted or incised designs. Although basal slab lining of pit structures was rarely used after the late 700s, plastered dirt walls continued to predominate until the middle 1000s. A single example of a post-1000s pit structure with dirt walls may have been present at Site 29SJ 629.

The dirt walls of structures of the 800s to 900s frequently flare out near their bases, resulting in a larger floor surface.

Jacal

A unique framework of closely spaced postholes lining the dirt walls of a "small" pit structure is noted by Roberts at House J in Shabik'eshchee Village (1929:41-43) (Figure A.37), who concludes that it is the remains of Pueblo I jacal construction. Additional examples of relatively widely spaced posts set into the adobe of a number of wing walls in many early pit structures have been encountered, but in general little use was made of this technique in subterranean structures as compared to contemporaneous aboveground rooms or ramadas. In surface structures this post-and-adobe construction occurs less frequently after the early to middle 900s. The use of this building technique, which for the most part might not be considered "true jacal" in the sense that posts are placed far apart and serve as only occasional reinforcement, is further considered in the section dealing with room and ramada construction.

Masonry

Pit structures constructed from the 500s through at least the middle 1000s occasionally exhibit sections of simple or compound, horizontally laid, sandstone blocks set in mud mortar; however, none has a complete masonry lining. During this period, there seems to be a consistent association of this type of construction with the remodeling and reinforcement of preexisting or disturbed portions of structures. This early masonry is primarily found in the south walls and the wing walls. For early pit structures, there may have been a need for additional structural support where the bench was discontinuous or where, without some framework, the roof would have rested directly on the ground surface.

More frequently, however, remodeling is evident where true masonry is present. The first use of walls of true masonry within small site pit structures is not well dated, although examples encountered by Roberts in

houses A and F-1 at Shabik'eshchee Village (1929:15, 31) are probably among the earliest. Interestingly, these two houses (Figures A.7, A.12) are formally similar, both probably constructed within the 500s to 700s time period. A subsequently constructed "protokiva" at the site also contains a section of masonry wall along the south wall, but this structure has a ventilator rather than an antechamber, as evidenced in the first two examples.

The first well-dated pit structure fully lined with masonry is Kiva A (Figure A.53) at Leyit Kin (Dutton 1938:78), the roofing of which has cutting dates in the late 1030s and early 1040s. The 18 ring dates (Dutton 1938:78) represent a large number of specimens that cluster too closely in age to indicate a typical Chacoan timber reuse pattern. It should be noted that the full masonry lining, along with the presence of pilasters, a southern recess, and the reintroduction of the bench (now masonry) probably place Kiva A construction a minimum of 50 years earlier than other datable, fully masonry-lined structures. Dutton's summary of the ceramic data "as Pueblo II and Pueblo II-III transitional" (1938:92) is in keeping with the tree rings, but she does not present a specific type breakdown, which would have been useful in terms of assessing comparability. It has been suggested previously that this entire roof may have been borrowed from the underlying structure, but there is no direct evidence for this other than the apparent architectural anomaly of this structure, which may well represent the early appearance of these features. This site, as a whole, also evidences an unusual organization of rooms (Truell 1981:3), a fact that may have little to do with the date or style of its construction.

Two structures at the Three-C site are also thought to belong to the same period as the Leyit Kin structure, but there are serious difficulties with their temporal placement. The two are more likely representatives of later A.D. 1000s construction. Several other pit structures, placed in the middle 1000s (based on association with a mixture of Red Mesa B/w and Gallup B/w ceramics), have dirt walls (Table 2.7).

It has been suggested that the initial use of entire masonry linings in pit structures in Chaco lagged behind its occurrence in other sections of the Anasazi region. Hayes notes that most pit structures in the Mesa Verde area were masonry-lined by the early Mancos phase in the late 900s to early 1000s (1964:94), although a few dirt-lined structures are present after that period (Hayes and Lancaster 1975:78). Brew (1946:212), however, reports a situation more like the one encountered in Chacoan small sites on Alkali Ridge, where the masonry lining of Pueblo II pit structures is restricted to structures that lie within earlier pits where wall reinforcement is necessary. Regardless of similarities or dissimilarities with areas outside Chaco, one cannot help but note the contrast with large early Bonitian sites where masonry pit structures occur at least 100 to perhaps 175 years before they become common in small sites.

Masonry styles. A detailed examination of masonry styles used in pit structures or aboveground rooms is not undertaken for this study. Briefly, even within time periods, a wide range of styles and workmanship is present

in pit structure masonry. This variability is described in part by Hawley (1937a:88-89) and ranges from banded rubble core examples such as Hawley's Types 6 and 8, to the crudely formed block-without-core type (early to middle 1100s). Hawley fails to note the contemporaneous occurrence of the "unsightly" types in association with the core-and-veneer examples within small sites. However, although the masonry is not usually rubble core, frequently the workmanship encountered in pit structures is superior to that of contemporaneously constructed aboveground room walls. Pit structure masonry often exhibits greater care in the selection and laying of block. The copious amount of mortar found in aboveground room walls is less frequent in subterranean walls. This care was taken despite the fact that pit structure walls were frequently or partially covered with plaster.

It does not appear as if block size is any more uniform in earlier pit structures than later ones (McKenna 1981b:49; Roberts 1929:15, 31; Truell 1980:V-45). Before masonry became widely used in house construction, and more building stone had to be gathered rather than reused, there seems to have been no trend to collect and/or quarry and form regular stones. This lack of uniformity, even in earlier construction, may support the theory that much of the stone for small site building was collected directly from the talus slopes.

Wall Murals

As mentioned above, no painting, incised designs, or coats of white gypsite plaster have been encountered in pit structures prior to the late A.D. 1000s. At Pithouse B, Site 29SJ 1360, a series of layers of undecorated plaster (buff, yellow, pinkish tan) was found covering the walls of the remodeled house associated with the middle to late 900s.

Wall murals appear in the late 1000s/early 1100s pit structures at the same time these structures both become masonry lined and evidence a sudden drop in the frequency and variety of floor features present. Mural motifs vary from stylized dado patterns to intricate and variable drawings. Since murals do not appear in any known small site contexts prior to the late 1000s, and largely religious contexts have not been identified from earlier periods, it is difficult to argue that their presence is a definite indication of locations of ceremonial activities.

Remains of painted murals have been observed in Kiva B at Leyit Kin (Dutton 1938:49) and in kivas 5, 6, and 7 at Bc 51 (Kluckhohn 1939:38, 39). Additionally, incised designs were noted in Kiva 3 at Bc 50 (Brand et al. 1937:78-79, Plate X). A series of thin coats of white plaster, possibly gypsite-derived (Warren, personal communication 1977), alternating with slightly thicker orangish-tan layers (Truell 1980:V-214), was encountered in Kiva E, Site 29SJ 627, but no traces of pigment were found. Similarly,

Brand (1937:77) notes the presence of 14 coats of "adobe plaster" in Kiva 2 and 7 coats in Kiva 4 at Bc 50, none of which was decorated or incised.

At Bc 54, Bullen ([1941]:15, 16) notes a series of four superimposed, semicircular holes that were superficially scratched into the wall plaster adjacent to six small "drilled?" holes and four other groups of scratched lines. Areas of red pigment were found on some of the six recorded coats of plaster. At Site 29SJ 1935, behind Pueblo Bonito, well-known petroglyphs showing a series of six-toed feet were pecked into the cliff face, which also formed the rear wall of a kiva at the site (Table 2.1).

Some researchers believe that the "special use" of pit structures after the mid-1000s is suggested by evidence of more assiduous "up-keep," e.g., they were apparently plastered much more frequently. There may be other practical reasons for this that are not immediately obvious.

Wing Walls (Partitions)

Table 2.16 lists the frequencies of structures with wing walls, and divides them into general categories based on morphology and construction. These wing or partition walls separate the front, often the southern, portion of the main chamber from the rest of the house. Bullard (1962:152) notes that these features are largely limited to Anasazi Basketmaker III and Pueblo I pit structures, a characterization that remains true for Chaco, although at Chaco they may have been in use until the middle to late 900s, past the end of the Pueblo I period in some areas. Wing walls occur infrequently by the middle 1000s, and are generally missing from the smaller masonry-lined structures that lack domestically-related floor features. Although the disappearance of these walls in Chaco may occur slightly before the noticeable decline of floor features in pit structures (Pit Structure F at 29SJ 627, Figure A.45), their presence seems to have been related to domestic activities, such as the enclosure of an area for tool and/or possibly short-term food storage. Similarly, some authors have cited the presence of these features as a criterion for distinguishing pithouses from kivas (Lancaster et al. 1954:55).

From the 500s through the middle 900s, these partitions consist of either relatively tall (40+ cm) post and adobe and/or slab construction, or low (5-13 cm) adobe ridges. These low ridges frequently connect with the firepit rim coping, accounting for pronounced sections of hearth rims in some cases. Tall wing walls frequently have one or two breaks in them to permit passage. In some cases, steps have been incorporated in wing walls of moderate height (Pithouse C at 29SJ 627; Figure A.26). A slab or two or a portion of the jacal wall is often placed between the central hearth and the ventilator tunnel or antechamber passage to act as a deflector. In the case of low ridge partitions or the presence of large gaps between wing wall segments, separate deflector slabs are necessary. The two major roof supports located adjacent to the facade wall may be incorporated in this

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Table 2.16. Wing wall type.

| <u>Period</u> | <u>Absent</u> | <u>Present</u> | <u>Low Adobe Ridge</u> | <u>Post & Adobe^a</u> | <u>Slab & Adobe</u> | <u>Combin.^b</u> | <u>Masonry</u> |
|------------------------------|----------------|-----------------|--------------------------------|---|-----------------------------|----------------------------|----------------|
| 500s-early 700s | 8 | 14 | 9 | - | 4 | 1 | - |
| Mid/late 700s- early 900s | 7 | 13 ^c | 3 | 4 | 3 | 1 | 2 |
| Mid/late 900s- mid 1000s | 6 ^d | 2 | - | - | - | 1 | 1 |
| Late 1000s- mid 1100s | 33 | 2 | - | - | - | - | 2 |
| Late 1100s- 1200s | ? | 1 | 1 | - | - | - | - |
| | <hr/> 54 | <hr/> 32 | | | | | |

a = mostly adobe with a few reinforcing poles.

b = generally upright slabs and adobe with a few poles.

c = 1 located in an antechamber.

d = Three-C Site examples not included; Platform in Kiva A at 29SJ1360 not classified here.

partition, and bins delineated by upright sandstone slabs subdivide the walled off area.

From the 500s through the middle 900s, low adobe ridge or slab and adobe wing wall types existed contemporaneously. Pithouse D at Site 29SJ 628, which dates to the middle to late 700s, has a low ridge wing wall in the antechamber and a combination post, slab, and adobe wing wall in the main chamber. There are discrepancies between Bullard's and my counts of the number of wing walls of different types in Chaco, probably because Bullard separated these features into more categories and drew data from sites outside of the canyon proper.

A large portion of the construction data of the 500s-early 700s period within Chaco is from Shabik'eshchee Village excavations. Of the 14 structures with data from this period, 8 of the 9 low ridge and 4 of the 5 slab and adobe and/or post wing walls are from Shabik'eshchee Village. As Bullard notes, a combination of construction types is frequently encountered. Low ridges consist almost entirely of adobe plaster with occasional small and useless looking slabs "reinforcing" them.

Higher slab and adobe wing walls are often reinforced by widely spaced poles in addition to the roof support posts set into them. These secondary supports occur in middle 700s-early 900s structures more often than previously. Probably because of the lack of immediately available wood, closely spaced poles typifying jacal construction are not encountered.

Although far from frequent, wing walls have been recorded in several pit structures that postdate the middle 1000s. Two masonry examples from Bc 51 (kivas 1 and 2) probably date to the late 1000s or early 1100s and resemble "deflector laterals" (Cattanach 1980:51), known to occur frequently in the Mesa Verde region in the 1100s-1200s (Rohn 1971:83; Cattanach 1980; Morley 1908:Figure 5; Sender 1975:190, Figure 10). The latest example, recorded at Gallo Cliff Dwelling, dates to the middle 1200s (archaeomagnetic date of A.D. 1250 \pm 56 for the first remodeling), and is described as a "peculiar low ridge of clay crossing the floor along the east-west line between the firepit and the south wall" (Abel 1974:11). In the plan view of this structure (Figure A.87), the wall makes a square jog to the south in the central area, adjacent to the firepit. This feature, unusual in shape and also in construction, is the only post late 900s adobe example.

Tables 2.5 through 2.9 list the heights of individual wing walls, which range from 6 cm (two examples from Shabik'eshchee Village) to 117 cm (Pithouse B at 29SJ 1360, Figure A.50). The height of this latter example was measured from the lower floor and may have had additions made to the top of it during upper floor construction (McKenna 1981:38). The next tallest example from House G in Shabik'eshchee Village is considerably shorter, measuring only a maximum of 76 cm (Roberts 1929:36).

Areas enclosed by wing walls and southern platforms. McKenna (1981a) lists front floor areas of pit structures enclosed by wing walls, including sites

other than those excavated by the Chaco Center. A noticeably more raised (in comparison to the normal slight elevation of the wing wall area above the main floor) area was encountered in the southern portion of Kiva A at 29SJ 1360 (McKenna 1981b:78). The platform area extends 20 cm above the rest of the floor surface and is reminiscent of raised portions of floors in "modern" Tusayan kivas, which extend 25 to 30 cm above the rest of the floor (Mindeleff 1891:121).

Architectural Features

Antechambers

Some authors have suggested (e.g., Bullard 1962:141) that antechambers functioned both as entries and storage areas. Since aboveground storage space (bins) existed external to pit structures at the same time that antechambers were in use, the adjustment of storage space within a site during the 500s through 700s was not restricted to a simple reorganization within pit structures. Generally small site examples show no apparent direct or indirect relationship between the size (after area) of the main chamber and of associated antechambers. At Shabik'eshchee Village, houses show no consistency in size (capacity) changes between the two chambers through time, while at 29SJ 628 (pithouses C and D [Figures A.5, A.28]), an increase in antechamber size and storage capacity (wall niches) accompanies a decrease in floor area in the main chamber (Truell 1976:99), apparently just prior to the replacement of antechambers by ventilators. It is not clear from the two structures at 29SJ 628 whether this relationship is coincidental or results from a readjustment in the use and amount of space within these houses, regardless of surface storage. With one exception (Pithouse C at 29SJ 628), the largest antechambers (5-6 m²) are associated with medium-sized main chambers (12-20 m²) rather than either the largest (30-31 m²) or the smallest (8-10 m²) (Table 2.17).

Antechamber floor depth ranges from a level equivalent with that of the main chamber or with a level about 10 cm above it. Occasionally steps from the outside have been found incorporated into the antechamber wall (houses A and F-1, Shabik'eshchee Village).

The transformation from antechamber to ventilator is documented at Site 29SJ 628. Archaeomagnetic dates indicate that three pit structures at the site were built in a series between about A.D. 760 and 780. The first (earliest) has an antechamber; the second, both an antechamber and a ventilator (in use together); and the third, a large round ventilator. Sometime during its use, the first structure's antechamber was remodeled into a ventilator (Truell 1976:99-103). It is not known whether this transformation took place contemporaneously elsewhere in the canyon; however, no excavated pit structures with antechambers postdate the A.D. 780s example (Pithouse D at 29SJ 628, Figure A.28).

Table 2.17. Antechamber/main chamber floor areas.

| <u>Provenience</u> | <u>Antechamber Floor Area (m²)</u> | <u>Main Chamber Floor Area (m²)*</u> | <u>Relative Age</u> |
|-------------------------------|---|---|---|
| 29SJ299 Pith. A | 5.97 | 18.08 | Early 600s |
| 29SJ299 Pith. D | 5.07 | 12.13 | Early 600s |
| 29SJ1659 House Y | 4.12 | 20.9 | Early 600s |
| 29SJ1659 House A | 6.58 | 19.6 | 600s |
| 29SJ1659 House K | 3.83 | 14.6 | 600s |
| 29SJ628 Pith. C | 5.07 | 38.00 | 600s-early 700s |
| 29SJ1659 House F-1 | 3.83 | 31.2 | 500s-700s |
| 29SJ1659 House G | 4.37 | 10.2 | 500s-700s |
| 29SJ1659 Protokiva House | unknown | 16.39 | (one constr. period-date unknown-early 700s) |
| 29SJ1659 (Shabik.) House J | 2.01 | 10.3 | Mid-late 700s |
| 29SJ628 Pith. D | 8.92 | 15.37-15.40 | Mid-late 700s |

*Measurements taken below the bench.

Ventilator Tunnels

With the conversion of the antechamber into a ventilator, the passage became an above-floor tunnel. This style of ventilator tunnel was retained for a relatively long period. The first small site subfloor ventilator tunnels excavated appear in the late 900s and early 1000s (Pit Structure F at 29SJ 627 and Kiva B at 29SJ 299, Figures A.43, A.45). During this period, the subfloor variety did not completely replace the above-floor type, the latter occurring contemporaneously (Pithouse 3 at 29SJ 629; Pithouse B at 29SJ 1360; Figures A.48, A.50).

It is not known what style of ventilator tunnel construction, if any, predominated in the middle 1000s. Two above-floor systems (kivas D and G at 29SJ 627; Figures A.44, A.46) and two subfloor systems (Kiva A at Leyit Kin and Kiva 1 at the Three-C site, Figures A.51, A.53) have all been tentatively assigned to this period, although the latter two, particularly the Three-C example, manifest late 1000s-early 1100s characteristics. Some believe that the subfloor variety disappeared for a time, but this impression could easily result from the small size of our sample of excavated sites.

Both above-floor and subfloor types are represented in the excavated examples from the late 1000s through middle 1100s. During this period, 20 pit structures have above-floor and 16 have subfloor systems (Table 2.8). Within this period, there are too few specific dates to ascertain which one type dominates at a particular time. Two structures that show remodeling from one ventilator type to another are poorly dated (Kiva E at 29SJ 627, from subfloor to above-floor; kiva at 29SJ 629 from above-floor to subfloor). There is an indication that within some individual sites there is consistency in the types of ventilators built during this time, for example, all five pit structures at Bc 50 have above-floor ventilators; all three from Bc 57 are subfloor.

Two above-floor and one subfloor ventilators dating to the late 1100s-1200s were excavated, indicating that for at least a portion of this period both styles persisted (Table 2.9). Ventilator style may have been largely a matter of individual preference, subject to external influences and changes through time. The coexistence of styles temporally, yet the consistent use of one or another at specific sites, indicates an individual site trend. The pattern of within-site style preferences noted in the previous period appears to have continued into 1200s construction. At Bc 52, three or four ventilators are subfloor. One of these may have been constructed during an earlier period of occupation (Mulloy 1941).

Ventilator Shafts

Through time, ventilator shafts progressed from vertical circular features, large enough to have accommodated the excavators during construction, to smaller circular features and ultimately to even smaller square or

round shafts, probably constructed by reinforcing a vertical trench. At ground level, later examples are finished with flagstone aprons. Some late 1000s-early 1100s examples (Kiva A at Leyit Kin, Kiva 4 at Bc 59) have semicircular shafts constructed entirely of masonry.

Entries

Although few in number, several narrow (53-75 cm), straight-sided "passages" have been encountered in association with early 500s through middle to late 700s pit structures. Houses L and perhaps M from Shabik'eshchee Village, Pithouse B at 29SJ 423, and Pithouse C from 29SJ 721 all include such features. The latter two (75 and 53 cm wide respectively) are described by Windes as "small ventilators" based on their narrowness (1975a:18, 1976b:14). The example at House L measures only 52.7 cm wide, closely approximating the 29SJ 721 example. Only the House L feature retains its full length of 91.44 cm. Although the purpose of these features is not known, they appear to have functioned as lateral entries without associated formal antechambers. Their restricted distribution among excavated examples may indicate a short-lived utilization.

After antechambers were replaced by ventilators, it is assumed that entry to pit structures was gained through the roof. Ladder rests, single or paired, and generally located south of hearths and deflectors, are present in only a few small site pit structures from any time period. Most of the recorded ladder rest holes are associated with late 700s-800s structures (Table 2.6), which may, in part, be due to poor floor feature documentation.

Other Wall "Tunnels"

Two late 1000s to middle or late 1100s pit structures (kivas A and C at Lizard House, Figures A.85, A.86) have lateral apertures that are exceptionally deep. In Kiva C the recess extends completely through the walls, but the exterior opening appears, from the site map, to have been blocked by a room wall. Maxon (1963:13) refers to this feature as an entry, and suggests that the Kiva A example, located in a similar position within the pit structure, functioned in the same way; both of these are located above the bench level, unlike entry tunnels elsewhere. These are the only two features found in later pit structures in Chaco that may have been designated "tunnels," other than those associated with ventilator systems.

Benches

Type

"Three-quarter" benches (Bullard 1962:146), encountered in the main

chambers of three excavated 500s-early 700s pit structures (e.g., Pithouses A and D at 29SJ 299; Figures A.1, A.3), are absent in contemporaneous examples at Shabik'eshchee Village. Houses in Shabik'eshchee, for the most part, lack benches completely. This differential use of the bench continues into the succeeding period, although its frequency increases slightly in the middle 700s.

Three-quarter benches are present in five and possibly six (the termination point of the Pithouse B bench at 29SJ 1360 is uncertain) of the 19 excavated middle 700s through 900s pit structures for which we have information (Table 2.15). This bench type was ultimately replaced by a fully encircling variety after the D-shaped structure had been supplanted by the exclusive use of the circular shape, even though this change in structure from D-shaped to circular does not precisely parallel the use of a specific bench type. Excavation data indicate that the flat wall, which incorporates the ventilator system and is associated with the three-quarter benches, was present until the early 800s. From the late 800s or early 900s through the early to middle 1000s, benches seem to have disappeared (Tables 2.6 and 2.7, Figure 2.7). Only near the end of this period do fully encircling benches appear in masonry-lined circular structures. This feature clearly dominates pit structure construction through the remainder of the known Anasazi occupation in Chaco. Ten of the 32 pit structures associated with the late 1000s to middle 1100s have benches that were broken only by southern recesses. It should be noted, however, that the uniform designation of "fully encircling" masks a variability in the width and nature of these recessed openings that could lead to the subdivision of this category (Table 2.15).

Structures without benches are present in all periods, although few are in evidence after the middle 1000s. Of the 35 excavated structures from the early 1100s, only three lack benches (Kiva 3 at Bc 59, Kiva A at Bc 54, and the kiva at 29SJ 629; Figures A.56, A.70, A.78). It has already been suggested that the kiva at 29SJ 629 may have had an earlier construction date than that suggested by Windes (1978b), but little is known about specific temporal placement of the other two examples without benches. Both of the latter kivas without benches are masonry-lined, unlike the one at 29SJ 629. Of the six late 1100s-1200s examples, five have benches (one is not described).

Bullard suggests (1962:146) that benches in early dirt-walled pit structures may have supported leaning roof members though no formal sockets are evident today. Benches lacking pilasters in later masonry-lined structures (floor postholes having disappeared) seem to have functioned solely as shelves and have not been integrated into the roofing scheme.

Dimensions

Bench height for all periods generally ranges between 34 and 183 cm. No directional pattern of change is apparent in bench height through time, either within or between sites. The lowest bench is from an early 600s

structure (Pithouse A at 29SJ 299) (Figure A.1), and the highest, from an early 1100s example (Kiva 1 at Bc 50; Figure A.58a). There seems to be a fair amount of variability in bench width within sites and within time periods. The overall sample ranges from 6 to 120 cm, although within a single bench the variation is generally not more than 15 or 20 cm. Only four examples have a range width of 40 cm or more (Pithouse D at 29SJ 299, Pithouse A at 29SJ 724, Kiva 2 at the Three-C site, Kiva B at Leyit Kin; Figures A.3, A.33, A.52, A.84).

Wainscotting

Feature 5 at Bc 50 and Pithouse A at 29SJ 724 (Figures A.33, A.39), both late 700s or early 800s pit structures, contained remains of reeds and bark and wooden poles or boards, which appear to have been assembled along the rear of the bench, apparently extending up to the roof. The original height of the boards found in Feature 5 is not known. The largest remaining board measures 22.5 cm wide, 2.5 cm thick, 30.0 cm high.

This construction resembles the wainscotting (bench backing or bench padding) encountered in the Classic Bonito phase town pit structures described by Judd (1964:181, Plate 56 lower), Lekson (1982a: Sec. III. C:13), Pepper (1920:75), and Reiter (1933:31), but occurs roughly 200 years before known examples from large site kivas. Since the two small site examples occur in structures that probably had "pithouse roofs," there seems little question that this material would have been visible from the interior of the pit structure during use. In addition to the posts or boards forming the lower portion of the roof superstructure, the vegetal materials packed behind them may have provided additional insulation against moisture and air.

Mindeleff describes a procedure for filling irregularities discovered while excavating the mungkiva at Mishongnavi: vertically positioned reeds were held in place with long slender rods, which formed a matting or wattle fastened to the rock wall with hard wood prongs and covered with a thick coat of plaster (1891:126-127). Although some might question the appropriateness of the application of this analogy or the necessity for such a procedure in large site pit structures, it seems that Feature 5 and Pithouse A provide evidence of the presence of wainscotting-like features.

Southern Recesses

The earliest southern recesses occur in pit structures dating to the mid-1000s. Pithouse A at Leyit Kin (Figure A.53) is the best dated example, with roof timbers placing the structure in the late 1030s-early 1040s. Kiva G at 29SJ 627 (Figure A.46), thought to have been constructed in the early to middle 1000s, also has a southern recess that was only partially

excavated. Pithouse A is masonry-lined while Kiva G has dirt walls and is similar in form and size to the kiva at 29SJ 629 (Figure A.56), which also has a southern recess, and which, on the basis of associated ceramics, has been placed by the excavator in the middle to late 1100s (Windes 1978b: 100).

Twenty-eight of the 39 recorded structures associated with the late 1000s to middle 1100s period have documented southern recesses. Table 2.18 compares the main chamber floor areas (below the bench level) to the depths of southern recesses. A number of researchers in Chaco (Dutton 1938; Reiter 1949; Vivian 1970b) have typified small site pit structures in the later 1000s to middle 1100s as "keyhole kivas," assuming an association between deep southern recesses and small structure size. Table 2.18 indicates that this association is inconsistent. It is not clear whether the assessment of small size was made in comparison with town site pit structures; if it were, the majority of small site kivas would be small. On the other hand, if this judgment is taken as a within-small-sites comparison, no such pattern emerges. Perhaps the only relationship apparent between these two attributes is that structures with floor areas of 10 to 12 m² have recesses that are consistently 40 to 65 cm deep. If this group were combined with the 12 to 14 m² floor area structures, it could be said that only one extremely shallow recess has been recorded within this time period. There does not appear to be better consistency within individual sites than between them (Table 2.19).

There is a logical correspondence between southern recessed depth and outward flare of the recess walls at the back. During the late 1000s through the middle 1100s, 11 structures had recesses that were at least 20 cm and usually 40 to 50+ cm wider across the back than along the side. Of those 11 structures, all but two have deep southern recesses (Table 2.19). Very shallow southern recesses would probably not show marked flares in any case. A number of possibilities exist as to the advantage of this type of flare. One suggestion is that it may have provided additional shelf space on the bench without increasing the roofed area appreciably.

The wall sections that may have included recesses are absent in the kivas at Gallo Cliff Dwelling and Bc 56 (both of the late 1100s-1200s). Only two excavated examples from Bc 52 had southern recesses, one of which (Kiva 2; Figure A.65) appears to have been shallow, but Kiva 2 may date to the middle 1100s. Too little information is available from this late period of Anasazi occupation to suggest that these features were either "Mesa Verdean" or relatively deep for Chaco.

Wall Niches

The number of structures that contain wall niches or compartments are listed by time period in Table 2.20. Only pit structures with completely exposed walls are described as having "no niches," and conveniently, structures that were only partially excavated contained none.

Table 2.18. Southern recess depth and main chamber floor area during the late 1000s-middle 1100s.

| <u>Floor Area (m²)</u> | <u>Maximum Depth (cm)</u> | | | | <u>Total</u> |
|-----------------------------------|---------------------------|--------------|---------------|----------------|--------------|
| | <u>0-35</u> | <u>35-70</u> | <u>70-105</u> | <u>105-206</u> | |
| 6 - 10 | 3 | 2 | 3 | 1 | 9 |
| 10 - 12 | 1 | 6 | - | 1 | 8 |
| 12 - 14 | - | - | 1 | 3 | 4 |
| 14 - 18 | 1 | - | 1 | - | 2 |
| 18 - 27 | <u>1</u> | <u>1</u> | <u>-</u> | <u>-</u> | <u>2</u> |
| | 6 | 9 | 5 | 5 | 25 |

Table 2.19. Depth of southern recesses with flared walls.

| <u>Provenience</u> | <u>Maximum Depth (cm)</u> | | | |
|--------------------|---------------------------|--------------|---------------|----------------|
| | <u>0-35</u> | <u>35-70</u> | <u>70-105</u> | <u>105-206</u> |
| Bc 50, Kiva 1 | | 1 | | |
| " Kiva 3 | | | | 1 |
| Bc 51, Kiva 1 | | | 1 | |
| " Kiva 6 | | | | 1 |
| " Kiva 7 | | | | 1 |
| Bc 53, Kiva A | | | | 1 |
| Bc 57, Kiva B | | 1 | | |
| " Kiva C | | | 1 | |
| Bc 59, Kiva 3 | | | | 1 |
| " Kiva 4 | | | 1 | |
| 29SJ627, Kiva E | | <u>1</u> | <u>1</u> | <u>1</u> |
| | | 2 | 4 | 5 |

This feature category includes any compartment that extends back into, but not through, the external walls. Only those with at least partially identifiable limits are counted since, particularly in dirt wall pit structures, animal disturbance often obscures the original form of the feature. If the excavator was uncertain whether the hole was a rodent hole or a wall niche, it is not included in these tabulations.

The frequency of niches increases in pit structures after the early 700s (Table 2.20). This increase lasts through at least the middle 1100s period of construction. As is evident from Tables 2.5 through 2.9, however, this frequency is variable in all periods and seems to be related to the individual structure rather than a specific time period or even a specific site.

Existing data on niche dimensions and shape are listed in Table 2.21. With the decrease in evidence of domestic activities through time, a concomitant decrease in floor area is noted. It has been assumed that during the transitional stage the gradual decrease in floor area was compensated in part by wall compartments that provided additional space; however, after the middle 1000s, when most domestically related features had disappeared from these structures, there does not seem to be an appreciable corresponding decrease in niche size (Table 2.21).

Morphology and Location

From the middle to late 700s through the middle 1000s, wall niches are often lunate or arch-shaped (Figure 2.10) although rectangular and cylindrical shapes are also present. No niches from this period show evidence of having been blocked off on the room-facing side, e.g., for storage, although such examples associated with remodeling were encountered. Several have flat slabs incorporated into their bases. These features may have been used as shelves for household items or small articles. The fairly consistent placement of niches in areas behind wing walls, in portions of the wall behind post seats and, in one case, in a pithouse antechamber (29SJ 628, Pithouse D; Figure A.28), seems to indicate an attempt to utilize less accessible portions of the house, possibly for storage of materials or tools not constantly needed. Niches are found at floor level, within the bench face or above it, or at differing levels within structures that contain no benches. Most are located below a height of about 1 m, below bench level and easily accessible from the floor surface.

In the late 1000s to middle 1100s period, the rectangular shape was used most consistently for the niche, undoubtedly due to the predominance of fully masonry-lined structures, although arched or cylindrical forms are present. Plaster copings, as in previous periods, surround the room-facing niche openings (e.g., Kiva B at Bc 57). In some cases, niches are described as oval, based on the plaster coping shape rather than the actual configuration of the feature itself (Kiva B at Bc 57).

Table 2.20. Structures with wall niches.

| <u>Period</u> | <u>Numbers</u> |
|----------------------------|---|
| 500s-early 700s | 2 out of 22 (where walls fully exposed) |
| Mid/late 700s-early 900s | 9 out of 20 " |
| Mid/late 900s-middle 1000s | 4 out of 7* " |
| Late 1000s-middle 1100s | 18 out of 39 " |
| Late 1100s-1200s | (too little information) |

* Both of the kivas at the Three-C Site had niches that were not included in this count.

Table 2.21. Pit structure wall niches.

| <u>Provenience</u> | <u>Niche Size (cm) (WxDxHt)</u> | <u>Shape</u> | <u>Volume (cc)</u> | <u>Struct. Fl. Area^a</u> | <u>Plaster</u> |
|----------------------------|--|------------------------|------------------------|---|----------------|
| <u>A.D. 500-early 700s</u> | | | | | |
| 29SJ299, Pith. D | 39x29x32 | Arch/cylind/ irreg. | | 12.13 | - |
| " | 70x40x33 | Arch/irreg | | " | ? |
| " | 52x60x45 | Irreg/open top | | " | ? |
| 29SJ1659, House I | 152x91x46 | Arch | | 7.1 | + |
| <u>Mid 700s-early 900s</u> | | | | | |
| 29SJ628, Pith. D | 53x25x36 | Arch | | 15.37-15.40 | - |
| " " antech. | 55x40x47 | " | | 8.92 | - |
| " " " | 27x16x33 | " | | " | - |
| 29SJ628, Pith. G | 38x28x38 | " | | 12.44? | ? |
| 29SJ628, Pith. A | 57x33x27 | " | | 13.06 | + |
| " " | 40x38x23 | " | | " | + |
| " " | 48x37x38 | " | | " | + |
| " " | 48x38x30 | " | | " | + |
| " " | 38x40x35 | " | | " | + |
| " " | 55x48x30 | " | | " | + |
| 29SJ628, Pith. E | 33x18x26 | " | | 14.25 | + |
| " " | 33x19x21 | " | | " | + |
| 29SJ721, Pith. A | 11x11x17 | Tapered cylind | 2057 | 9.2 | - |
| 29SJ724, Pith. A | 34x? | ? | ? | 22.10 | - |
| " " | 22x23x28 | Tapered conical | | " | - |
| 29SJ1360, Kiva B | 8x5x5 | Rectangular | 200 | 12.55 | + |
| 29SJ1659, Pith. C | 20x23x25 | Rectangular | 11745 | 6.40? | + |
| Bc 50, Feature 5 | 75x88x50-58 | Rectangular | ? | 21.73 | ? |
| " " | (52.5 wide at back) | | | | |
| " " | ? | Cylindrical | | " | + |
| " " | ? | Cylindrical | | " | + |
| <u>Mid 900s-mid 1000s</u> | | | | | |
| 29SJ299, Kiva B | 117x? | Arch | | 12.56 | + |
| " " | 58x28x44 | " (shelf) | | " | - |
| " " | 19x20x27 | Oval | | " | - |
| " " | (bells to 37x22) | | | | |
| " " | 26x24x33 | " | | " | - |
| " " | (bells to 31x26) | " | | " | - |
| " " | 20x21x27 | Circular | | " | - |
| 29SJ629, Pith. 2 | 20x14?x14? | Irreg. rect. | | 16.15 | + |
| " Pith. 3 | 50x23x25 | Rectangular | 28,750 | 8.39 | - |
| " " | 27x27x22? | Rectangular | 16,038 | " | - |
| 29SJ627, Pit Strc.F | (2 niches? in north wall - just plugged phs.; like Pith. E at 29SJ628) | | | | |
| <u>Mid/late 1000s</u> | | | | | |
| 29SJ625, Kiva 1 | 18x31x? | Rectangular | | 8.34 | b |
| " Kiva 2 | 24x34x21 | Rectangular? | | 9.73 | ? |
| " " | 21x27x? | " | | " | ? |

Table 2.21 continued.

| <u>Provenience</u> | <u>Niche Size (cm) (WxDxHt)</u> | <u>Shape</u> | <u>Volume (cc)</u> | <u>Struct. Fl. Area^a</u> | <u>Plaster</u> |
|--|--|---|------------------------|--|----------------|
| <u>Late 1000s-mid 1100s</u> | | | | | |
| 29SJ629, Kiva | 33x19x24 | Rectangular | 15048 | 11.26 | + |
| 29SJ721, Kiva | 20x19x18 | Tapering cavity | | 11.34 | + |
| Bc 50, Kiva 2 | 50x84x55 | Arch (formerly square) | | 11.40 | + |
| " " | (#? other niches - no data or dimensions three are behind wing wall in SW corner) | | | | |
| " Kiva 4 | 35x60x40 | Arch | | 10.12 | |
| | (may be a second niche; no dimensions or description) | | | | |
| Bc 51, Kiva 1 | 20x24x? | Rectangular? | | 13.27 | |
| " Kiva 2 c | 18x13x? | Rectangular | | 17.24 | |
| " " | ?x?x10 | Oval/arch (2 niches) | | " | + b |
| " Kiva 7 | ? | | | 12.50 | |
| Bc 57, Kiva B | 39x33x23 | Rect/oval | 28373 | 10.96 | |
| " " | 20x8x13 | " " | 1875 | " | |
| " " | 30x20x23 | " " | 13500 | " | |
| " " | 39x41x23 | " " | 36055 | " | plugged door |
| " " | 33x30x23 | " " | 21938 | " | |
| " " | 31x28x? | " " | ? | " | |
| " " | 8x9x23 | " " | 1586 | " | |
| " " | 20x8x11 | " " | 1695 | " | |
| Bc 58, Kiva A | 13x10x20 | Rect.? | 2500 | 7.60 | b |
| | (second niche?) | | | | |
| Bc 59, Kiva 1 | 17-22x15x? | 2 troughed metates | ? | 8.90 | b |
| " Kiva 3 | 72x88x? | Square/rect. | ? | 9.00 | |
| " Kiva 5 | 11x8x18 | " " | 1584 | 22.35 | b |
| Bc 236, Kiva | 11x14x30 | Square/rect. | 4882 | 18.69 | |
| " " | 13x13x33 | Square | 5078 | " | |
| " " | 21x18x25 | Square/rect. | 9013 | " | b |
| Bc 362, Kiva 1 | 29x29x47 | Arch (pole in niche roof dated A.D. 1085C) | | 10.29 | + |
| " " | 23x34x26 | ? | | " | + |
| " Kiva 2 | 10x12x6 | Rectangular | 658 | 11.04 | + |
| " " | 18x21x46 | Rectangular? | 17813 | " (plugged with keystone shaped slab) | b |
| " Kiva 3 | 82x34x21 | Arch | | 13.51 | |
| Leyit Kin, Kivas A&B (see tunnel description; p. II-B-42,43) | | | | | |

a (Struct. Fl. Area) = below the bench level.

b = These niches were located in north bench opposite vent tunnel.

c = Kiva 2 at Bc 51 was the only example that had both a sipapu and a north bench niche.



Figure 2.10. Arch-shaped wall niche in Kiva B at site 29SJ 299.

Although wing walls and floor postholes generally are no longer present in late 1000s pit structures, niches seem to maintain their locations on either side of the ventilator tunnel or along the back (often north) wall. Niches located in the north structural wall, placed directly in line with the ventilator tunnel and the central firepit and often below the bench top, occur most frequently (in 6 or 7 of the 18 early 1100s structures with niches).

Function

While it is likely that niches were used for temporary storage, they probably did not contain foodstuffs. This statement is based on the lack of evidence for closure, the differential occurrence of interior plaster, and the presence of slab linings in only two or three cases. There also may have been no consistency within or between structures with respect to niche use. Very few artifacts have been recovered from niche fill, and those that were may represent post-occupational deposition. An exception is a cylindrically-shaped niche in the northwestern portion of the wall above the bench at Feature 5 (Bc 50); it held nine possibly worked concretions and a white stone pipe with an incised ring at the mouth end (Senter 1939:Plates 6, 26) (Figure A.39). From Senter's notes, it is unclear whether or not this niche had been sealed behind the bench padding when the structure was in use. An additional recess in the western portion of the same house contained a portion of a shell bracelet. Apart from these, a piece of obsidian from Niche F in Pithouse A at 29SJ 628 and several abraders from Pithouse 3 niches at 29SJ 629 were the only artifacts recovered. The remaining items within these features appear to have been ritual offerings. Niches may have been used for both ritual and domestic storage, which may explain why niche frequency did not decrease with other domestic features in post A.D. 1000s pit structures. Adams (1982) notes the co-occurrence of niches with ceremonial rooms as well as living rooms in modern Walpi.

Niches in the North Bench

Niches located in the wall opposite the ventilator tunnel (and in line with the firepit) have been found in many Anasazi pit structures of 1100s-1200s construction (Cattanch 1980; Hayes and Lancaster 1975:82, 87; Lancaster et al. 1954:57; Rohn 1971:74; Swannack 1969:54-55). Mindeleff describes similarly placed niches in the rectangular kivas of Shupaulovi where they are referred to as "katchinkihu," which represents the "sacred orifice from which the katchina is said to come" (1891:121, 123, Figures 22, 25). Reiter (1933:33-34) and Roberts (1939:212) refer to these as "Katchina niches," note their presence primarily in kivas rather than pit-houses, and link them with similarly placed niches in historic Hopi and Acoma kivas; the former association is probably based on Mindeleff's account (1891). In Hopi kivas, Roberts notes that these niches, referred to as "Katchina Kihu," are receptacles for masks of certain dancers during

ceremonies, while at Acoma they are considered doorways "through which the spirits of the gods enter and leave the kiva" and where certain prayers are offered (1939:212). The connection between these historic and prehistoric features remains unverified. Most prehistoric north wall niches in Chaco pit structures are very small (Tables 2.8, 2.21) and could not have accommodated much in the way of stored materials of either a ceremonial (e.g., Acoma masks) or a mundane nature. Although perhaps not associated, the appearance of north wall niches is concurrent with the conspicuous disappearance of sipapus in late 1000s/early 1100s structures. These wall features may have replaced the floor features, which would then differentiate them from historic "katchinakihus" (found in the same structures with sipapus). No small pit structures that contained both sipapus and north wall niches were found in the canyon. Spotty floor feature excavation, which characterizes much early exploration, may be the reason for the lack of recorded sipapus. Outside the canyon in areas such as Mesa Verde, the co-occurrence of these two features within 1100s and 1200s structures has been recorded (Lancaster et al. 1954:57).

These north wall niches in Chaco are most frequently located in the bench face; several exhibit unusual construction. For example, the niche in Kiva 1 at Bc 59 is formed by portions of two metate troughs, their concave surfaces facing one another. These two fragments were ground along the edges facing the pit structure's interior.

Judd (1964:196) notes the common existence of north wall niches in Bonito phase kivas, although dimensions are not given and location is not consistently shown. Lekson (personal communication 1982) indicates that these features may not be quite as common as Judd suggests.

Floor Features

Table 2.22 summarizes the types and frequencies of floor features associated with pit structures of specific time periods. Hearths are not included in this tally since their presence in pit structures is assumed.

Table 2.23 gives a brief description of the attributes associated with major feature categories and the range of variability included within specific definitions as applied here. Bullard (1962) is frequently referred to as a principal source for terminology. The variable quality of information on floor feature occurrence and form, and the lack of standardization of the terminology applied by past and present excavators in Chaco creates a fair amount of confusion. Where sufficient information exists (see criteria below), readjustments of their original field designations into categories for use in this text were made (Table 2.22). Features that were not readily classifiable are listed simply as "pits" or "other pits."

Various types of information contributed to feature classification: specific physical data (size, shape, cross section, degree of burning, etc.) and locational and associational information (relation to other

Table 2.23. Pit structure floor feature descriptions.

Hearth and Firepit: see page 209

Heating Pits

| | | | | |
|--------------------|---------------|-------------|--------------|--------|
| a. Size - (Length) | mean = 51.47; | sd = 15.14; | cv = 29.42%; | n = 36 |
| 700s-900s " | " = 55.05; | " = 14.54; | " = 26.42%; | " = 21 |
| 900s-mid 1000s | " = 40.5; | " = 5.04; | " = 12.44%; | " = 12 |
| (Width) | mean = 37.47; | sd = 11.32; | cv = 30.20%; | " = 35 |
| 700s-900s " | " = 40.14; | " = 10.39; | " = 25.88%; | " = 21 |
| 900s-mid 1000s | " = 29.83; | " = 6.04; | " = 20.26%; | " = 12 |
| (Depth) | mean = 12.31; | sd = 6.69; | cv = 54.31%; | n = 34 |
| 700s-900s " | " = 13.08; | " = 7.41; | " = 6.62%; | " = 20 |
| 900s-mid 1000s | " = 9.36; | " = 3.75; | " = 40.05%; | " = 11 |

b. Shape - oval to rectangular; occasionally circular

c. Other Characteristics - generally burning and slight reddening restricted to the pit rim and occasionally pit base suggesting already heated materials placed within them--no primary fires; interior-plastered or unplastered; rim flush with floor surface; fill consistently composed of a layer of clean yellow sand, sometimes upper portion of which was burned purple to orange, and a layer of charred twigs; some contain fire blackened or reddened roundish rocks; all examples but one plugged; generally absent from pit structures after the late 900s-early 1000s (see Bullard 1962:163-166).

Ash Pits

a. Size

| | | | | |
|--------|--|-------------|--------------|-------|
| Length | mean = 51.17; | sd = 7.47; | cv = 15%; | n = 7 |
| Width | mean = 35.67; | sd = 12.54; | cv = 35.18%; | n = 7 |
| Depth | only 3 values recorded - all shallow (5, 8, 13 cm) | | | |

b. Shape - irregular, inconsistent (see below)

c. Other Characteristics - located between hearth and ventilator tunnel; sometimes reused pit or previous hearth but generally only slightly burned or unburned; may have accommodated ladder base or deflector slab in some cases; half had interior plaster, some were simply scooped out; fill = mostly white ash, usually some charcoal and burned and unburned sand--emptied from adjacent hearth.

Bell-Shaped Storage Cists

a. Size

| | | | | |
|--------------|---------------|-------------|--------------|--------|
| Length (top) | mean = 29.27; | sd = 8.75; | cv = 29.90%; | n = 24 |
| (bottom) | mean = 41.67; | sd = 15.79; | cv = 37.89%; | n = 24 |
| Width (top) | mean = 26.09; | sd = 8.15; | cv = 31.25%; | n = 24 |
| (bottom) | mean = 39.42; | sd = 15.87; | cv = 40.26%; | n = 24 |
| Depth | mean = 46.45; | sd = 9.83; | cv = 21.17%; | n = 24 |

Pot Rests

a. Size

| | | | | |
|--------|---------------|-------------|--------------|--------|
| Length | mean = 38.89; | sd = 18.24; | cv = 46.91%; | n = 9 |
| Width | mean = 29.17; | sd = 15.26; | cv = 52.31%; | n = 9 |
| Depth | mean = 15.97; | sd = 8.04; | cv = 50.31%; | n = 10 |

b. Shape - oval, dish-shaped in cross section

c. Other Characteristics - filled with clear sand, located adjacent to firepits, unburned

Ladder Rest Holes - characteristics described in text

Sipapus - see page 211

portable and non-portable artifactual material either contained within the feature or external to it). It should be mentioned that these functional classifications are not as specific, in terms of associated activities, as one might wish. Some of the names of features, such as "pot rest," are associated with a series of descriptive attributes that may or may not relate to the specific activity implied.

Pit functions may change in number and, to a degree, in type through time, an occurrence that cannot be recognized in a mere tally of pit "types"; for example, there is a noticeable decrease in heating pits documented at Site 29SJ 627 over time in both pit structures and aboveground rooms. This is not conclusive evidence that the activity associated with these features simultaneously disappeared from the site. It may be that heating pit activities were combined into firepit use, although there is no evidence in support of this suggestion. A similar situation exists with regard to mealing bins. Prior to the use of fixed catchments and partial bins, mealing areas were not formally identifiable, from the archaeological record, although certain areas were undoubtedly consistently used for grinding. For these reasons, feature frequencies as described may be only relative indicators of a decrease in domestic activities within pit structures. More convincing evidence for the decrease in this activity is the disappearance of so many feature types from these later structures within a brief period of time.

Firepits

In the following discussion I refer to the substantial, flat-bottomed, slab- or masonry-lined fireplaces commonly encountered in pit structures as either hearths or firepits. They are distinguishable in terms of functional implications from the shallow, scooped-out, slightly burned firepits occasionally encountered in aboveground storage rooms, the latter expressing considerably less labor investment and frequently less utilization.

In his consideration of "firepit" morphology, McKenna (1981a:14-17) notes a direct relationship between feature volume and pit structure size during Basketmaker III and early Pueblo I periods, in which the larger the pit structure, the larger the firepit. He observes that near the end of Pueblo I and through Pueblo II and III periods (Bc sites not included in the latter) a lack of correlation exists between pit structure size and hearth volume. Structures decrease in size but hearth size remains the same. Additionally, McKenna notes that specific hearth shapes appear to express different relationships volumetrically in relation to floor area. McKenna questions his selection of hearth volumes over length-width dimensions as meaningful size indicators, as it is not clear how prominently depth affects the usable portion of such a feature. Frequently the base of the feature, especially in the case of deep pit structure fireplaces, is not the level at which the fire was constructed.

Bullard notes that until around A.D. 900 most pithouse firepits were walled with the native soil into which they were dug, only occasionally

evidencing stone or clay lining (1962:156). Most hearths associated with 500s-900s pit structures in Chacoan small sites were lined with sandstone slabs, plaster, or a combination of the two. Hearth plaster is either yellow tan adobe or gray clay. Also contrary to what Bullard encountered (1962:157), this plaster was occasionally continuous with that of low adjacent wing walls.

McKenna (this volume) reports a change in hearth form through time in pit structures, although he does not outline differences in construction. Generally slab lining continues from the 500s through the end of the Anasazi occupation, with only a few hearths evidencing the use of the flat-laid masonry often incorporated into remodeled sections (29SJ 627, Kiva G).

The quantity of burned materials, such as ash, charcoal, and burned sand, indicates that relatively substantial wood fires were prepared within pit structure hearths. Hearths from two thoroughly sampled sites (29SJ 627 and 29SJ 629) yielded little micro- or macro-botanical material other than charcoal (Cully 1977, 1981; Struever 1977; Toll 1981). Of the burned seeds present in small site hearth fill, weedy economic species, available in the areas directly surrounding these sites today and principally comprised of *Cheno-Ams* and *Descurania* (Tansymustard), dominated (Toll 1981). There does appear to be a contrast between small site and some large site hearth samples. In the case of Pueblo Alto, the aboveground hearth samples contained noticeably fewer weedy annuals, although a representation of burned economics (pinyon nuts, beans, prickly pear cactus, beeweed) not found in small site hearth samples from either aboveground rooms or pit structures was recorded (Toll, personal communication 1981). The "burned economic" materials found in the Pueblo Alto samples were not gathered in the immediate site area, in contrast to those found in small site hearths, which were readily obtainable nearby (Toll, personal communication 1981).

Many of pit structures excavated by the Chaco Center had accumulations of modified and unmodified sandstone slabs overlying the hearth. Hayes (personal communication 1976) suggests that these slabs had been stripped from around the hatchway and discarded on the floor when roofing materials were removed for reuse (Stephen 1936:1178).

Heating Pits

As is apparent from Table 2.22, heating pits occur in pit structures through the 900s but not after the early to middle 1000s. It seems unlikely that even if excavation techniques were poor, these features would have been overlooked in the 32 structures from which we have data.

Table 2.23 lists the attributes generally associated with heating pits. The categories of size, shape, depth, degree of burning, and fill characteristics are similar to those described by Bullard (1962:163) elsewhere within the Anasazi region. This situation contrasts with the high degree of variability encountered in features at Pueblo Alto, where Windes

records a wide range in heating pit size and shape. Unlike the restricted light burning noted in small site examples, many of those at Pueblo Alto evidence extreme and entire burning. The flotation samples processed from Pueblo Alto heating pits were similar to those taken from that site's fire-pits and contained the same types and abundance of burned seeds (Toll, personal communication 1981). Flotation samples from heating pits, known primarily from samples processed from sites 29SJ 627 and 29SJ 629, contained very few burned seeds, making post-occupational contamination a strong possibility (Struever 1977, Toll 1981).

A very low pollen yield from heating pits at 29SJ 629 and 29SJ 627 was observed by Cully (personal communication 1982) but it is not known whether any pollen samples were processed from Pueblo Alto heating pits, thus obviating any comparative possibilities.

Ash Pits

Table 2.23 lists characteristics and mentions the typical locations of ash pits encountered in pit structures. As is apparent from Table 2.22, these features are present in low frequency from the early 700s to the early 900s, with a subsequent rise in numbers until the middle 1000s. Only one later example has been excavated (Kiva 2 at the Three-C site) one thought to have been associated with the middle to late 1000s. Bullard (1962:159) records an increase in frequency in this pit type from Basket-maker III to Pueblo I in the northern San Juan Basin. It appears, from the restricted sample available from small Chaco sites, that Hayes' suggestion (personal communication 1974) that this feature may not appear until the beginning of the Pueblo I period is accurate.

The paucity of these features in general does not argue for their essential nature at least as receptacles specifically for ash accumulations, regardless of the period of association. Very few ash pits are encountered in association with aboveground living room floors either before or after the decline in floor feature frequency in pit structures.

Sipapus

The interpretation of the function of the small hole located north of the hearth in line with the ventilator tunnel will not be rescrutinized here. Features given the designation of "sipapu," as in Anasazi houses elsewhere (Bullard 1962:166), are tentatively identified by their position, size, and to a lesser extent, shape and finishing. Although a number of these features contain interior plaster, only one example (Kiva 2 at Bc 51) has an olla neck incorporated into the rim as a collar (Kluckhohn 1939:36). Additionally, Voll (1964) reports a sipapu in Kiva at Bc 362 that is well-molded, plastered, and flared slightly at the base, resembling a miniature olla.

Niches, located in the north wall generally below the bench and found in a number of the late 1000s through middle 1100s pit structures, may have supplanted sipapus. Prior to this period, sipapus (within the floor) are present in many of the excavated structures (Table 2.22). The lack of this feature in later pit structures may be related to incomplete excavation of floor features. It is interesting to note that in modern kivas, Mindeleff (1891:130) notes that only certain kivas in which more important ceremonies are held have sipapus.

Floor Grooves

Long, relatively narrow grooves, lying perpendicular to the north central portion of the wall, were found in three floors (Feature 5 at Bc 50, Pithouse E at 29SJ 299, and Pithouse A at 29SJ 724; Figures A.25, A.33, A.39). All are associated with the middle 700s-900s houses. Two of these are single grooves, while the third (Pithouse E at 29SJ 299) consists of two parallel grooves, the one adjacent to the wall apparently somewhat longer than the other. Bullard (1962:167-169) discusses Haury's suggestion that they may have accommodated buried logs, which acted as loom anchors. Loom anchors in modern Tusayan kivas are made of wood planks and located adjacent to kiva walls with anchor beams buried beneath the floors (Mindeleff 1891:132, Figure 1).

A series of floor grooves of seemingly another type was encountered in the excavation of a pithouse located beneath the trash between sites Bc 50 and 51 (Kluckhohn 1939:26). This series of grooves, running perpendicular to the southwestern portion of the structure wall, appears to be associated with a line of bins in this portion of the house.

Above-floor Bins

Many of the 500s-early 700s structures excavated in Chaco have slab-lined bins, generally located along the front wall of the structure adjacent to the antechamber. The majority of these bins lie within the area enclosed by the wing walls, or in the front section of the house if the wing walls are absent (Table 2.22). Occasionally a slab-lined bin is encountered along the back or north wall (Pithouse A at 29SJ 299; Figure A.1). Upright sandstone slabs adjacent to north or northeast postholes in three houses at Shabik'eshchee Village indicate possible bins not adjacent to the front house walls.

As wing walls become less common, and floor area more restricted, these slab-lined features occur less frequently and are not found after the early 900s. This disappearance, however, takes place somewhat before that of many other domestically related features. Apparently these bins were among the first to be moved from subterranean structures and incorporated into aboveground rooms, where they remained through the end of Anasazi con-

struction in the canyon. A discussion of storage space changes in these structures is considered in overall site space use.

The only examples of slab-lined bins containing artifactual material occur in Pithouse A at 29SJ 299. Two cists within this structure held ground stone implements (Akins 1980:220). None of these bins has the slab-lined base that is occasionally noted elsewhere (Bullard 1962:171).

Bullard suggests that these features functioned as temporary storage areas for food (1962:170). If this is accurate, it seems logical that they would be located close to food preparation areas, which would account for their later presence in aboveground living rooms but perhaps not for their early disappearance from pit structures prior to reduced evidence of domestic activities.

Subfloor Storage Cists

Table 2.22 lists the frequencies of subfloor storage cists associated with pit structure floors by relative time period. Table 2.23 further subdivides these features into two classes: 1) "bell-shaped," referring to an identifiable cross section that increases in diameter with depth, and 2) "other storage pit," encompassing a miscellaneous collection of storage features of varying dimensions. There remain numerous "unclassified" pits that may well have functioned as storage facilities, but are unidentifiable as such (Table 2.23). The overall distribution pattern of subfloor storage pits is much the same as that for the above-floor slab-and-adobe bins discussed previously. These features disappear from pit structures after the early 900s. Since throughout the construction sequence, bell-shaped pits are encountered in storage room and aboveground living areas (e.g., ramadas), it is not apparent that their frequency increases in these aboveground situations relative to a decrease in pit structure features. The volume of storage they represent is discussed with overall site use in the concluding chapter.

These storage cists range in size from a pit that accommodated a 25-liter narrow-necked Tunicha B/w storage jar in Pithouse C at 29SJ 627, to cists of 5 liters or less in capacity. Only a few have interior plaster; flat sandstone slabs occasionally plastered in place, often served as lids to seal the constricted pit rims. These features may have been used as food storage, possibly on a short-term basis. Aboveground facilities undoubtedly accommodated bulk stored materials.

The pit that held the 25-liter jar mentioned above was remodeled specifically to house this narrow-necked olla. Although this vessel may have originally functioned as a water jug, the residues indicative of long periods of water storage were not found in its interior (McKenna, personal communication 1981). Mend holes indicate that it may have been buried within the floor to guard against further breakage, set into place with plaster, and converted to a dry storage vessel.

Mealing bins

Only three (possibly four) pit structures from any period contain identifiable mealing bins. It has been suggested that when a number of domestic activities were being carried on in pit structures from the early 500s through the middle to late 900s, fixed mealing areas were not yet in common use within the canyon. By the middle 1000s, when mealing bins were relatively frequent in aboveground rooms, archaeologically identifiable evidence for food preparation and small volume storage was no longer apparent in the vast majority of pit structures.

That mealing activities took place in the pit structures of the early 500s through 900s does not seem a matter of great contention. Complete, usable metates have been encountered behind wing walls (Roberts 1929:23), within slab-lined above-floor bins (Roberts 1929:69), and on floors (Adams 1951:281; Kluckhohn and Reiter 1939:26; Loose 1979:15-16). Atypically, one and possibly two early examples of fixed mealing areas were identified at Shabik'eshchee Village (houses A and B?). Roberts (1929:14) describes the House A example as a large oval depression containing a metate (troughed?) with a small depression on one side that held the mano when not in use (Figure A.7).

A pithouse located beneath the trash deposits between Bc 50 and Bc 51 contained a series of grooves left by slabs that had been set perpendicular to the pithouse wall. At the roomward ends of these slab grooves were circular shallow depressions that might have been left by posts (Figure A.40). Based on the plan view of this structure, it appears that this series of "bins" was open along the roomward side; however, Kluckhohn (1939:26-29) reports that no data were available from Bliss' excavation of this house. The linearity of these features is reminiscent of a series of mealing bins, even though the actual construction of these is not duplicated in other features of this type. If used as such, the grinder would have faced the wall, the opposite of the usual practice. These features are not clearly for mealing or storage.

The other examples of mealing bins located in pit structures include Pithouse 2 at Site 29SJ 629 and Kiva D at Site 29SJ 627 (Figures A.44, A.47). The first construction of two bins in the 29SJ 629 structure may date to sometime in the middle to late 900s (Windes, personal communication 1981), while the Kiva D bin probably dates to the middle 1000s. The Pithouse 2 bins are the same form as many 1000s aboveground room bins encountered in small sites. They have the usual bowl-shaped catchment areas and metate rests, are comprised of basal slabs, and are located beneath the area where the high side of the metate would have been. The notable characteristic of these bins is the low to non-existent side walls related to the exclusive use of troughed metates, a type that would not necessitate high containing walls (Schelberg, n.d.).

Pot rests

The use of this term does not necessarily indicate that the feature was used as a "pot rest." These oval pits, frequently located adjacent to the central pit structure hearth, are described according to their attributes in Table 2.23. Frequently excavators did not consider these features as distinguishable from other pits of unknown function and only cautiously added them to this class. Table 2.22 lists the temporal distributions of examples included in this category, and shows their occurrence only in the 500s through 900s period, the same temporal distribution noted for bell-shaped storage cists and slab-lined above-floor bins. The possibility that many features from these later structures may not have been excavated has already been discussed. Pot rests, like heating pits, never occur with the same frequency in aboveground living rooms as they do in pit structures.

Floor vaults

Only one small pit structure has a west floor vault (foot drum), a feature typical of most large site kivas during the "Classic Bonito Phase" (Judd 1964:177; Lekson 1982a:III.C.3). As is already well recognized, west foot drums are not a phenomenon restricted to large Chacoan sites. They have been found in other pit structures surrounding the canyon proper (Donaldson 1981:41, 42) and are common in other portions of the Anasazi region (Mesa Verde), particularly from the early 1100s through the 1200s (Cattanch 1980:95, 112; Hayes and Lancaster 1975:87-89; Lancaster et al. 1954:47-48, Cist 2?).

Little is known about Kiva 5 at Bc 59 since no notes remain from the excavation of this structure by Gordon Vivian in 1950. Stabilization photos (Vivian and Abel 1951:Kiva 5) indicate that the vault was constructed with a plaster coping surrounding lateral shelf ledges, which presumably accommodated plank covers as evidenced in the later construction of Kiva D at Pueblo Bonito (Judd 1964:Figure 18). It is not known whether the Bc 59 example was masonry lined, as were the latter examples.

Deflectors

Remains of deflectors are frequently but not invariably apparent in pit structures of all periods of construction. In the early examples, the tall wing walls were built in such a fashion as to make separate deflectors unnecessary. Where subfloor ventilator tunnels were present, the flow of air was not drawn directly into the firepit. This feature was either reduced to a single upright slab placed alongside the hearth or it was eliminated. In the few cases where a subfloor ventilator tunnel is preserved along the hearth-facing side, it is apparent that the deflector is not incorporated into the tunnel's roomward end. Some ventilator systems exist that would, from all appearances, benefit from deflectors, where no remains could be detected.

Generally deflectors were constructed of upright slabs. The remains of mud and post construction are occasionally found, but are considerably less common. Masonry examples generally are not widely known until the early 1100s, although the first example is tentatively associated (but poorly dated) with the middle 1000s (Three-C site, Kiva 2; Figure A.52).

Comments

The number of floor features per structure is summarized in Table 2.24. The potential inaccuracies of these tallies have already been discussed. If these figures reflect any degree of truth, it is apparent that there is a lack of features in pit structures in the 500-early 700s, paralleling that of the late 1000s/early 1100s structures. (There is a similar high percentage of structures with one or no associated features.) One should remember that a great number of the structures in the earlier period are from Shabik'eshchee Village (Table 2.5). This paucity in features may be related to that single site. Since there are numerous problems with these overall feature frequencies, it is more useful to examine internal changes within well documented sites. Of the Chaco Center's excavated sites, the best candidate for this long-term feature frequency comparison is probably site 29SJ 627. Within this site, is very apparent that pit structure feature frequency drops sharply in the middle 1000s.

Summary of Form

The understanding of the appearances and disappearances of pit structure characteristics as presented here is clearly restricted by our understanding of the time frame in which these data are set. The points of origin of a number of architectural traits, which, for example, seem to coincide with the late A.D. 1000s, may simply be a by-product of a lack of chronological refinement. Crucial time gaps are present in the excavated small site record, which may either reflect sampling inadequacies or actual reduction in construction.

Despite these limitations, some patterns of formal change in pit structure architecture are observable within and between small sites through time. The period from the 500s through the middle 900s seems to have been characterized by gradual alterations in structural form, representing a trend toward greater consistency in size, shape, and feature association (use of benches, wing walls, floor features) in pit structures within and among sites. This period is followed by a relatively rapidly transpiring series of formal changes, generally following patterns already established, but compressed into a shorter period (ca. 100 years). These transformations in pit structure architecture, noted in Chacoan small sites up to the middle 1000s, follow a general pattern of formal changes documented in many other portions of the Anasazi region.

Table 2.24. Floor feature frequency by relative time period.

| | <u>Total # Structures</u> | <u>Total # Features^a</u> | <u>Average # Pits/Struct.</u> |
|---|-------------------------------|---|-----------------------------------|
| 500s-early 700s (no data on five additional structures) | 22 | 65 | 2.9 |
| Middle 700s-early 900s (no data on one additional structure) | 20 | 118 | 5.90 |
| Middle 900s-early/ middle 1000s (insufficient data for one additional structure) | 7 ^b | 87 ^c | 9.66 |
| Three-C Site | 2 | 9? | |
| Late 1000s- early to mid 1100s (no data on 22 additional structures) | 39 | 30 | 0.77 |

Insufficient data for the late 1100s-1200s

^a Not including postholes, ladder rest holes, and hearths.

^b Kiva G at 627 (half excavated) and Kiva A at Leyit Kin are not included.

^c upper floor of Pith. 2 at 29SJ629 included in calculation, upper floor of Kiva B, 29SJ299 used (only one pit).

In order to summarize the change and diversity observed in excavated small site pit structures, a summary of variability through time is presented here along with a review of sample biases.

A.D. 500s--early 700s

The earliest (late 400s) pit structure in the excavated sample, Pit-house B at 29SJ 423, is an extremely small and shallow circular house with the remains of an entry and upright slab-lined wall bases (Table 2.2). Temporal association was decided largely on the basis of its location, which is beneath an early 500s Great Kiva (Robinson et al. 1974:39). The presence of a relatively high percentage of Woodruff brownwares at the site indicates the possibility of an A.D. 450 through 550s occupation (McKenna, personal communication 1981). Little additional information is available on structures from the early portion of this time period, thus it remains uncertain whether the known small, shallow structures are representative of it.

Shabik'eshchee Village structures have circular to square (sub-rectangular) main chambers with four floor postholes, slab-lined wall bases, either associated entry passages or antechamber/entry systems, and no benches. Some of the characteristics of Shabik'eshchee structures, shared with 29SJ 423 and other later houses of this period in Chaco, also occur in pit structures constructed up until the 800s, despite gradual changes in style.

Shabik'eshchee examples dominate the sample of excavated structures from the 500s through the early 700s. Although the Chaco Center excavated other structures elsewhere from this period, they amount to only five or six complete houses in addition to another structure dug at Shabik'eshchee. Pit structures associated with antechambers containing D-shaped main chambers and 3/4 benches (a house form not found at Shabik'eshchee Village) were encountered in three of four examples dating to this period, which were excavated by the Chaco Center. This difference may be attributable to a number of factors. Initially and most obviously, these two styles of construction probably existed contemporaneously. It is also possible that the construction of a number of the Shabik'eshchee houses predate slightly those that have been excavated elsewhere (with the exception of Site 29SJ 423. Ceramic evidence from Pithouse Y (Figure A.24) at Shabik'eshchee places the use of the structure between A.D. 550 and 600 with filling occurring after A.D. 620 (McKenna and Toll 1981:2). Two of the pit structures from the Center's excavations at Site 29SJ 299 (Figures A.1, A.3) have been dated by both tree-rings and archaeomagnetism to the early 600s, possibly roughly contemporaneous with the cutting of some beams for the Great Kiva at Shabik'eshchee (latest tree-ring of 349fp-581+vv) but slightly earlier than Pithouse Y. It seems likely that Shabik'eshchee and these other sites were occupied contemporaneously. Interestingly, the two "later" (late 700s-800s) structures (House C and Protokiva House) that Roberts documents at Shabik'eshchee lack the D-shape and the associated 3/4 bench of contemporaneous examples and, instead, exhibit the fully encir-

cling benches associated with round structures. It may be that house style is more consistently adhered to within sites than among them. Possibly earlier construction styles lingered at sites (i.e., Shabik'eshchee) where they had been in use for a longer time. (Survey ceramics do not clearly indicate the presence of a late 700s-800s occupation of Site 29SJ 423, thus the duration of the occupation at this site or in the immediate vicinity remains unknown.)

If these consistencies of construction style are slightly stronger within sites than among them during this time, it might be that neighboring sites express greater similarities to one another than they do to ones slightly more distant. During the A.D. 600s, sites 29SJ 299 and 29SJ 628, though separated from one another by roughly 1.6 km, exhibit more architectural agreement than they do with Shabik'eshchee, 5.5 km and 7.1 km away respectively. The potential shifting or closer spacing of households with population expansion might affect this influence or the degree to which it is manifested in architecture. Clearly our sample is too small to confirm this and, in fact, one site excavated by the Chaco Center offers some confusion.

Site 29SJ 628, partially excavated by the Chaco Center and located near a number of excavated sites which were occupied contemporaneously, has 600s and 700s pit structures which are formally quite similar to those found at neighboring sites. However, the form and overall site organization of the 800s present a fairly pronounced architectural contrast to those of nearby sites. Obviously proximity not only does not necessitate formal similarity; furthermore, within site patterning over time may not follow a predictable course in this regard.

Although differences in particulars of structure configuration do exist, it should be noted that perhaps the similarities apparent between sites in terms of what we know about the use of these houses based on feature associations, contents and their relationship to storage cists, and external work areas is very consistent. Throughout much of the Anasazi area during this time there is a well-known similarity in architectural and ceramic design.

Houses associated with this period of construction in Chaco (A.D. 600s-800s) consistently contain the four floor posthole pattern, wing walls (either the high divider or short ridge type), and exhibit a south to southeast orientation. Generally these structures are shallow, in part dictated by their location. Most have antechambers, although two have what may be entry passages or perhaps early examples of ventilators.

Early 700s--Early 800s

Little is known about Chacoan small site structures in the first half of the eighth century. One might argue from both an architectural and ceramic point of view that the 500s through early 700s period could be legitimately extended to the middle to late 700s or possibly early 800s.

Many have considered the last portion of the eighth century to be a transitional period to the traditionally recognized Pueblo I pattern, with storage rooms connected to one another in a line fronted by a roofed work area adjacent to the pit structure. With more data, the option of a transitional period might allow us to detect small specific variability in the architectural form of pit structures. Lacking these data, the late 700s/800s architecture is herein included with the early 900s, not so much because there has been a traditional break (i.e., one that vacillates between 700 and 800 depending upon the portion of the Anasazi region considered), but because this period falls after the gap in our information and makes more cohesive sense with the next period. An identifiable ceramic component period dominated by White Mound B/w among the decorated wares appears in the early 700s and extends through to A.D. 800. If additional early through late 700s houses were excavated within the canyon, this time period should either be isolated as suggested above, or the succeeding period should be extended from the early 700s through to the early 900s. I rather prefer the suggestion of separating this period, which some have called the "White Mound Phase," and viewing it as a transitional, discrete separate unit.

Middle/Late 700s--Early 900s

As mentioned, much of what was established architecturally by the middle of the preceding period continued into the late 700s and early 800s. The transitional period previously noted (dominated White Mound B/w, La Plata B/w, and Lino Gray) will be further described in the section dealing with aboveground rooms; it is here represented among the excavated pit structures by Pithouse A at 29SJ 724, Pithouse E at 29SJ 299, and Feature 5 at Bc 50 (Figures A.25, A.33, A.39).

Twenty to twenty-one pit structures from 13 small sites (Table 2.6) associated with this period have been excavated. These structures represent a wider sampling of sites than those of the previous period, which were mostly at Shabik'eshchee Village; however, it is difficult to determine the temporal relationship among these sites. (Locations of the structures with respect to landform are listed in Table 2.13) Pit structures continue to be dirt-walled with circular, rectangular, or D-shaped forms, although the latter configuration seems to dominate during this time (Figure 2.7). Orientation of these structures continues to be predominantly to the east, southeast and south, although structures fronting true south seem to be more common during this period than in the previous one (Table 2.10). Benches occur more frequently during this period. Gradually as structure size decreases, major floor postholes are moved closer to the periphery, and in some cases they become incorporated into the bench face. Also during this time, antechambers are converted into ventilator shafts. In the best dated examples, this transformation occurs in the late 700s--a temporal placement based on a series of pit structures excavated at Site 29SJ 628. It has been suggested that ventilator tunnels, not entries, existed in the previous period where lateral passages were "too small for use as chamber access" (Windes 1975a:18, 1976b:14). One example of this

type is noted by Windes in Pithouse C at Site 29SJ 721. Others have been recorded (Lancaster et al. 1954:3) outside of Chaco; however, in the canyon, this feature does not become widespread until ca. A.D. 800. Increased structural depth over that of the previous period may once again be attributable to the location of a structure, i.e., the depth and type of bedrock or residual soil. More excavated pit structures of this period are associated with slope and floodplain locations than those explored from the 500s through early 700s (Tables 2.23, 2.24).

An "adjustment" associated with pit structure size reduction begins to be apparent near the end of the early 900s in which walls were built to flare outward near floor level (the circumference being reduced as the wall height rose to the roof), presumably creating less area to be roofed in relation to floor space available. Additionally, large wall niches occur in more structures and in greater abundance than before.

Pit structure architecture in small Chacoan sites, associated with arcs of contiguous surface storage rooms and adjacent ramada areas, is so similar to Anasazi construction elsewhere within the region during this time that any local variations seem of little importance.

Middle 900s--Middle 1000s

As mentioned, only eight or nine structures are securely dated to this time slot. The two final constructions from the Three-C Site appear to fall at the very end or more likely into the succeeding period, despite Vivian's description of the site's ceramic assemblage, which places them earlier (Table 2.7). Based upon this restricted sample one may suggest that major changes in architectural form occurred during this time. Due to the poor dating of this small group, the rapidity of the change or the exact time at which it occurred is uncertain.

During the early portion of the period, the decrease in structure size seems to stabilize (Table 2.13). The bench, absent by the middle 900s or slightly earlier, reappears with fully lined masonry structures in the late A.D. 1000s. Structures continue to possess a variety of floor features until about 1000, slightly before or at the same time as quantities of Gallup B/w pottery appear in mixed assemblages with Red Mesa B/w. Floor features disappear quite suddenly after A.D. 1000. The apparent rapidity of this transition contrasts with the established pattern of gradual transformation of the preceding period. Clearly this "pithouse-kiva transition," discussed at such great length by so many, had been evolving for some time. The impact of fully enclosed work areas in surface rooms is of obvious importance in adjusting fixed floor feature frequency. Yet, the reduction in the number of floor features from many to almost none is not accompanied by a decrease in numbers of structures themselves. One might argue that it makes no sense to move only a portion of a kitchen or workshop from one place to another, leaving the rest behind in the original location, but what then is the function of the empty pit structures that remain? One ultimately returns to this question.

Although the number of floor features suddenly decreases at the beginning of the eleventh century, structures retain their dirt walls for a short period at least. The earliest example of a fully masonry-lined structure is Kiva A at Leyit Kin, which, as a whole, has architectural characteristics that seem ahead of other contemporaneously constructed pit structures (e.g., pit structures D and G from Site 29SJ 627). At least one and possibly two southern recesses are encountered in structures that were not yet masonry-lined (a relatively unusual occurrence), although other early examples are known in the Anasazi region (Hayes and Lancaster 1975: 78-79).

Subsequent to the change of the antechamber into a ventilator system, above-floor ventilators were in use for a number of years. The first sub-floor ventilators appear in pit structures around the late 900s, but the above-floor variety continues. There is some question as to whether there is a period in the middle 1000s in which a subfloor or an above-floor type is present to the exclusion of the other. This may be a false impression based on our extremely restricted sample. It seems entirely possible that both types persist throughout the remainder of the Anasazi small site occupation.

This period is ceramically defined by the dominance of Red Mesa B/w among the decorated wares. Near the end of this period, Gallup B/w occurs as a mix with Red Mesa B/w in relatively equivalent proportions. This period is truncated at the point that some "assume" Gallup B/w should dominate the decorated wares. Unfortunately, we have excavated next to nothing that can be attributed to the late 1000s, which may or may not be because few small sites contain construction from this period. (See "The Small Site Record," this volume.)

Late 1000s--Middle 1100s

By the middle to late 1000s, small site pit structures become consistently circular and masonry lined with fully encircling masonry benches. Most commonly, four tall bench pilasters form roof assists, perhaps analogous to the four floor postholes of earlier pit structures, though not always symmetrically placed in the 1000s-1100s structures. By the late 1000s or early 1100s, wing walls occur in only a few cases (occasionally referred to as "deflector laterals") and southern recesses are almost ubiquitous. Wall murals appear on the plastered surfaces of pit structures, contemporaneous with the use of masonry walls. As mentioned, pit structures had few floor features. This impression is emphasized by the fact that we lack complete information from a number of structures and suspect that it may be incomplete from others. Sipapus decrease markedly in numbers, possibly replaced in Chaco by niches placed in the central portion of the back (often north) pit structure wall. It is not clear that the functions of these two features are interchangeable prehistorically since structures in other areas possess both. Nor is it evident that the frequency of sipapus is not due to the incomplete recovery of other feature types suspected for this time. Pit structures are built closer to the

roomblock than previously, and enclosed in square walls--a layout referred to by some as "blocked-in kivas." Some pit structures built during this time exhibit "large site" structural characteristics.

Late 1100s--1200s

Like the early 900s through middle 1000s, this time period is represented by very few excavated structures. Only three or four can be dated with any accuracy; two additional examples possibly belong to either this or the preceding period (Table 2.12). The sample size is unfortunate, as is the poor quality of information available on the excavated structures. The period is of interest since it is posited that much of the activity in the large Bonitian sites was greatly reduced by the early 1200s. This period was encountered in one site, 29SJ 633, which the Chaco Center explored, but only a small test was made in one pit structure to locate the top of the masonry lining. The only example (at Gallo Cliff Dwelling) with "reasonable" descriptive information (i.e., having a floor plan) from this period does not appear to have the "Mesa Verdean" characteristics often ascribed to this period.

Comparison of Formal Characteristics of Small Site Pit Structures with those of the "Bonitian" Style

Little information is available on pit structures from large sites associated with the period of dominance of Red Mesa B/w in the A.D. 900s. The fact that the occurrence of "bench padding" has been isolated as the only "town" attribute which occurs in small sites first may be a matter of ignorance concerning early town pit structure characteristics.

Judd (1964:177) describes a series of "kivas" at Pueblo Bonito as "Chaco-type" on the basis of a specific series of attributes he observed during his excavations of this town. These include subfloor ventilators, west subfloor vaults, encircling benches with 6 to 10 "low" pilasters, and a shallow southern recess. Although Judd does not mention large size and generally well-executed masonry, these could be added to a list of "Chaco-type" attributes, especially when comparisons to small sites are being made. Lekson places the construction of these pit structures in the early 1000s, or at least prior to the middle 1000s (personal communication 1981).

Judd, in his characterization of "Chaco-style kivas," noted the co-occurrence of a series of attributes. All of the large site pit structure attributes that Judd mentioned, without exception, occur in small site pit structures, mostly associated with late 1000s/early 1100s through middle 1100s structures. (Yet, in only two or three cases do the majority of these characteristics co-occur in small site examples [Kiva C at Lizard House, Kiva 5 at Bc 59, kiva at Bc 236].) Of the "Chaco-style kiva" (see

below) attributes described by Judd, two occur at isolated small sites. These include the western foot drum noted only in Kiva 5 at Bc 59 and "low" pilasters encountered in the kiva at Bc 236. Outside of Chaco, west floor vaults have been found relatively frequently in sites associated with 1100s and 1200s occupation in the Mesa Verde area.

The number of small site pit structures in relation to room count is discussed in the consideration of overall site organization and utilization in Chapter Four.

Use of the Term "Chaco Style Kiva"

The term "Chaco-style kiva" becomes confusing when small site pit structures in the canyon are considered. The previous discussion describes the formal development of small site pit structures within Chaco through time, which, at the moment, appears to have been considerably longer lived than pit structures at "town" sites. Although Judd was emphasizing "town kiva" characteristics in his use of this term, and this designation has become understood as such in the vernacular, perpetuation of this view (Lekson 1982a) presents several difficulties. We must approach the larger question of whether entire sites are "Chacoan." If large sites in the canyon are classed as "Chacoan" and the small sites are not, this distinction is merely inaccurate. If the sample distinction is used outside of the canyon, this lack of precision is amplified. Judd's set of attributes, which traditionally distinguishes large sites in Chaco, has also been used to identify the problem of determining the origin of the builders of a house or community. Powers has addressed this question in detail and has described the difficulties in characterizing sites outside of Chaco as "Chacoan" (Powers et al. 1983). However, with regard to the question of origin of the builders, if large and small sites within Chaco are both equally "Chacoan," I doubt that many archaeologists would, at least at the present time, be capable of distinguishing small sites as Chacoan in origin when they occur outside the canyon.

Use of the Term "Mesa Verde Style Kiva"

In the discussion of southern recesses (above), it is noted that small structure size is not correlated with deep kiva recesses either within or among sites, despite the fact that these "keyhole" style structures have been described as typifying small sites in Chaco. Dutton (1938) and Vivian (1965) have used the term "Mesa Verde" style to describe small site pit structures with moderately deep southern recesses (Table 2.18) and with an inconsistent number of pilasters (usually four where the term has been specifically used) without recognizing the lack of specific correlation with kivas on the Mesa Verde. It has become practice to classify any small site kiva that is not formally "Classic Bonito Phase" or that was built in the early 1100s as a "Mesa Verde" style. It should be noted that there is

an inconsistent pattern used in small site pit structure construction in the 1100s in Chaco, although there are certain characteristics that occur more commonly than others. Additionally, there is no reason that these structures should be formally compared to Mesa Verde. The mean size of early 1100s pit structures in Chaco ($n=38-41$) is between 1 and 2 m² larger than the mean size of kivas at Mug House ($n=8$), which, granted, represents a much smaller sample of later construction. The estimated recess depth in 10 structures from Mug House (Rohn 1971) and Long House (Cattanaach 1980) averages 1.10 m deep ($s.d=0.27$). This 1.10 m recess depth, a maximum in Chaco pit structures, was found in five of the 25 examples (Table 2.18). Six pilasters occur in three or possibly four cases of 35 where the roofing system is understood. The five pilaster pattern is totally lacking. Cribbed roofs are suspected of being very uncommon in Chacoan small sites. As noted, tunnels connecting one pit structure to another or to aboveground rooms are never found in Chaco small sites, which is in contrast to the wide occurrence of these features in the Mesa Verde area. Unfortunately, we have little architectural information from the 1200s pit structure construction in the canyon that might actually reflect some Mesa Verde influence.

Pit Structure Deposits

This portion summarizes material associations encountered in small site pit structures. While pit structure fill characteristics in general are not considered in this report, some aspects of both post-occupational and occupational deposits encountered near use surfaces reflect a pattern worth consideration.

Faunal Remains

A number of pit structures had articulated skeletons of dogs or turkeys on floors or in the floor fill. In some cases, despite the absence of associated identifiable grave goods, intentional placement of the remains is apparent. The presence of groups of these two animals some depth below ground surface is conspicuous. At Bc 50, Brand notes that complete skeletons of young female hens were "spread out" between the ventilator tunnel and the deflector slab in all four "kivas" at the site (Brand et al. 1937: 74). Kiva 4 contained two individuals in this location. All of these young hens were missing their heads--probably not a matter of chance. Table 2.25 lists the proveniences where articulated skeletons of dogs and turkeys were encountered.

The intentional placement of turkeys and dogs within pit structures, possibly in conjunction with ritual closure (or abandonment) of the structures, has been reported in other portions of the Anasazi region (Emslie 1978; Gillespie 1976:153). Gillespie (personal communication 1981) be-

Table 2.25. Articulated animal skeletons in small site pit structures.

| <u>Provenience</u> | <u>Animal</u> | <u>Portion*</u> | <u>Location</u> | <u>References</u> |
|----------------------|------------------------------------|-----------------|----------------------------------|------------------------------------|
| Bc50, Kiva 1 | 1 young female turkey | Head missing | Fl. between vent and deflector | Brand et al. 1937:74 |
| Kiva 2 | " | " " | " | Brand et al. 1937:74 |
| Kiva 3 | " | " " | " | Brand et al. 1937:74 |
| Kiva 4 | 2 young female turkeys | " " | " | Brand et al. 1937:74 |
| Feature 5 | 3 turkeys 2 dogs | Complete? " | Just above fl. " | Senter 1939:21 Senter 1939:21 |
| 29SJ299 Kiva B | 1 dog | Disarticulated | Assoc. with 4 human burials(fl.) | Akins 1981b:13 Loose 1979:38 |
| " | 1 dog | | " | Loose 1981b:13 |
| " | 1 dog | | In vent shaft | Akins 1981b:14 Loose 1979:32 |
| 29SJ299 Pith. E | 2 turkeys | | Floor contact | Akins 1981b:14 Windes 1976a |
| 29SJ627 Kiva D | 1 dog (< 1 month) | | Fl. between vent and deflector | Akins 1981a Truell 1980: V-170A |
| | 1 dog (ca. 4 months) | Skull only | Floor north of deflector | Akins 1981a Truell 1980: V-170A |
| | 1 deer | Skull cap only | Floor west of hearth | |
| 29SJ627 Pit St. F | 8 immature turkeys (2 wks) | | Fill above floor | Akins 1981a:29 Truell 1980:V |
| 29SJ1360 Pith. B | 1 immature dog (ca. 4.5 months) | | Floor | Akins 1981:4 |
| | 1 immature dog (6-7 months) | | " | Akins 1981:4 McKenna 1984 |

* Articulation assumed unless noted otherwise.

believes that the areas in which this pattern has most commonly been encountered (to date) are Mancos Canyon in southwestern Colorado and Chaco. Although the presence of these skeletons may have been connected with a ceremony related to pit structure abandonment, the situation is not encountered ubiquitously (which probably cannot be entirely attributed to preservation or recovery techniques). Kluckhohn (1939:34) reports that no turkeys were present on the floors of pit structures in excavations at Bc 51, indicating that subsequent to Brand's finding, early excavations were examining these proveniences closely and that probably no such deposits were present.

Although a sample of eight structures is small, similar deposits of turkey bones were not found in houses constructed before A.D. 700. In carefully excavated proveniences at Bc 50 and 29SJ 627 superimposed pit structures seemed to adhere to the same pattern of placing animals on the floor. Interestingly, at 29SJ 627 animals were found associated with the lower fill of Pit Structure F but not with Kiva D which superimposed it.

Except for a series of cuts on the deer skull found in Kiva D at 29SJ 627 and the decapitated turkeys from Bc 50, there are no signs of violent death. Akins concludes, however, that if their throats had been slit, there would be no skeletal indication of it.

I could find only two (possibly three) references to these types of deposits in Bonitian towns. Dogs encountered on or near the floors of kivas F and I at Pueblo del Arroyo are reported by Judd and Allen (Allen 1954:65-66) and a series of bear and mountain lion claws were recovered from a north wall niche in Kiva G at Pueblo Bonito (Judd 1954:65). The latter could represent ceremonialism related to something other than abandonment. Considering the number of pit structures at large sites and assuming this evidence was not completely ignored by excavators, there seems to be less of this activity at large than at small sites.

Human remains

Whether or not the burial population approximates the age ratios of other prehistoric Anasazi populations is not dealt with here (Akins and Schelberg 1981:2; Palkovich 1980:73). It is nevertheless apparent that, with or without offerings, fewer human remains were found in pit structures than in refuse mounds or in aboveground rooms. Table 2.26 lists all the human remains recovered from pit structures for which we have data. Site Bc 51 is a possible exception, with burials apparently having been recovered from five out of six pit structures (Kluckhohn 1939:39). Not all of these are in Table 2.26, since Akins was unable to obtain information on some of them.

Akins does not view a number of these deposits as actual "burials," since conditions of their interment (burial goods, prepared pits or burial mats, etc.) do not indicate primary placement of the body. Some human re-

Table 2.26. Human remains from small site pit structure floors or features.

| <u>Provenience</u> | <u>Portion*</u> | <u>Location</u> | <u>Comments</u> |
|-----------------------|--------------------------------|---|--|
| Bc 51, Kiva 1 | Child 4-6 yrs. | Vent shaft | |
| Bc 51, Tr. Md. | "Scattered burial" | Northwest corner bin | |
| Bc 51, Kiva 6 | Skull only | Floor | Not a burial |
| Bc 59, Kiva 3 | Young adult; complete? | Sprawled on side on floor | Akins suggests an accidental death; not a burial |
| 29SJ299, Kiva B | 4 humans 3 dogs (1 disart.) | Strewn through fill; 1 dog in vent shaft | Secondary burials after structure abandoned |
| 29SJ1360, "Kiva" B | 5 humans 2 dogs | On floor except 1 child in vent shaft | Murder and asphyxiation |

* Actual burials with grave goods, signs of grave preparation, etc.

mains encountered within pit structures might be classified as accidental. For instance, a young adult was found on the floor of Kiva 3 at Bc 59, lying in a sprawled position as if he had fallen (or been thrown) into the structure (Akins, personal communication 1981). In Pithouse B at 29SJ 1360, two female adults and two children were found with two dogs. A third child had been placed (?) within the ventilator shaft. These remains do not appear to be a traditional group of burials in that one of the women had an arrow point in her abdomen and another in her chest cavity, and evidence of a possible arrow shaft puncture in her right arm (McKenna 1984). Despite the apparent violence suggested, McKenna (1984) believes that these deaths were probably attributable to asphyxiation. Another portion of a 4-6 year old child was found in the ventilator shaft of Kiva 1 at Bc 51.

Kiva B at 29SJ 299 contained portions of four humans and three dogs within the fill. These appear to have been placed there after abandonment as opposed to being the reason for it.

Although pit structures would normally have been costly places, in terms of the energy expended in their construction, to use as burial sites, in cases of accidental or violent death, individuals seem to have been left at the scene. This pattern is noted elsewhere in the Anasazi region. Documented murders continue to be rare (Nickens 1975), but perhaps this is in part due to difficulties of detecting them.

Offerings

The practice of placing offerings within the structure during building is known from prehistoric as well as historic Puebloan contexts (Saile 1976). In earlier Chacoan pit structures (500s-900s), these offerings have been recovered from floor postholes and smaller postholes that accommodated leaning bench posts (Mathien 1981:628; Truell 1976; Windes 1976b:9). Windes (1975a:29) also notes turquoise, sherds, and a piece of chipped stone in two postholes associated with the initial construction period of the Great Kiva at Site 29SJ 423. Additionally, pieces of turquoise, obsidian, and shell have been occasionally recovered from wall niches (Senter 1939:26; Truell 1976:79). These niches are generally unsealed, making it difficult to determine whether or not these materials were placed in them at construction. A turquoise and shell cache was recovered from the floor of a ventilator tunnel of an early to middle 1000s pit structure at Site 29SJ 627, which may either represent a post-occupational or immediately post-constructional deposit.

Offerings of this type, regardless of time period, are not common, occurring in a total of only six to eight or nine pit structures depending on how depositional situations are viewed. This occasional occurrence is similar to that of the "ritual closing" associated with the presence of turkeys and dogs. These offerings, from our record, seem not to have been consistently placed within pit structures during construction or abandonment. Because of possible differential recording techniques employed for

sites of earlier periods (500-early 900s) versus sites of later periods (1000-1100s), the relative frequency of cache occurrence in any time period cannot be ascertained.

Consistently more identifiable ceremonial artifacts in primary contexts have been recovered from pit structures than from aboveground rooms. This pattern is apparent both before and after the disappearance of domestically related materials and fixed features from pit structures. Within pit structures, an increase in portable artifacts that can be associated with ceremonial activities is not apparent through time, although the few fixed features associated with ceremonial activities do seem to occur more often in later periods, perhaps due to increased formalization in these features.

Primary Associations

Apart from the skeletal remains and offerings incorporated into the construction discussed above, very few pit structures contain materials deposited during their occupation. Most usable items seem to have been removed at the abandonment of the structure. When such material is found, it seems to be associated with some prehistoric incident of violence or accident. In Pithouse B at Site 29SJ 1360 where the four asphyxiated or murdered individuals were found on the floor (McKenna 1981b:332-337), the materials in use at the time were left untouched within the house (McKenna 1981b:142, Figure 83). McKenna describes in detail the materials that were clustered on the bench of the structure. Included are quantities of bone tools that were either complete or in the process of manufacture (1981b:299-300), quantities of hammerstones and some abraders, some whole pots and worked sherds, and a few pieces of chipped stone. With regard to the bone tools, McKenna finds a wide range of uses reflected in forms and wear patterns. Although these items were distributed evenly across the bench area, the occurrence of tool types in pairs suggests that two people (or groups) were involved in performing similar activities within this structure (McKenna 1981b:305). The last use of this house is placed in the early 1000s (McKenna 1985:119).

An earlier work area was located in Pithouse A at 29SJ 299, which has several dendrodates in the early 600s (Table 2.5). This structure was burned, possibly accidentally. Loose (1979:15-16) notes three artifact concentrations on the floor surface, containing several Lino Gray ollas, seed jars and Plain Gray bowls, one La Plata B/w bowl, worked sherds, several intact troughed metates (rarely found whole), manos, hammerstones, and polishing/pecking stones. Akins (1981b:10) notes an interesting assemblage in the central subfloor cist of the structure: 56 bones, corncobs, several bone beads, and a bone pendant. The bone consists of cottontail and jack-rabbit and prairie dog, which may be debris from a meal, since evidence of burning and cooking brown was present on a few. Additionally, Akins notes the presence of pocket mice and a skull of a spadefoot toad and suggests that these are probably post-occupational. If this is a primary deposit,

immediately disposed of in this pit, it might indicate a January or May date (1981b:10). Although Pithouse D at 29SJ 299 also burned, little remained within this house.

These two proveniences (29SJ 1360 and 29SJ 299) represent the best examples of primary association of artifact assemblages; however, other examples of such activities have been recorded. Windes (1976a:42) notes that the construction of Pithouse A (29SJ 724) reflects the building techniques of two individuals (representing two separate families) who shared the structure, each having separate suites within the aboveground roomblock. He concludes that dual activity loci are apparent on the pit structure floor and that differences in building techniques are evidenced in distinct halves within the house.

Pit Structure Function

Many people studying prehistoric spatial arrangement and activity distribution have recorded observations about formal and inferred functional changes within pit structures by principally considering the "pithouse to kiva transition." A few have advocated examination of activity areas and sex-specific tasks associated with morphological changes (Breternitz 1982; Gillespie 1976; Gilman 1983). Unfortunately such an examination is not possible for much of the Chacoan small site sample. For most pit structures excavated prior to Chaco Center excavations, records have not survived that specify locations and descriptions of floor-associated artifacts. In addition, floor feature inventories (number, size, shape, contents, and other structural characteristics as well as location) are suspected of being very incomplete.

Recently collected data from a restricted sample indicate that in a few sites that experienced long-term occupancy, portables and non-portables associated with food preparation and processing activities rather suddenly disappeared from early to middle 1000s pit structures. This reduction in floor features occurs in Chaco considerably later than it is noted in some other portions of the Anasazi region.

Even the study of the presence or absence of floor features associated with specific functions in pit structures constructed after this apparent transition presents problems with the Chaco data base. Although most early 1100s pit structures contain few floor features of any type, a number of small 1100s houses may have more floor features than were noted during excavation. In returning to some of these pit structures to obtain archaeomagnetic samples, Windes repeatedly noted the presence of unexcavated pits, which most often had not been investigated. The Chaco Center did not dig any small site pit structures from this period, and therefore can add no comparative data of its own. For the moment, let us assume that, like other areas in the region, Chaco pit structures actually contain fewer features in the late 1000s.

Small houses have between 1:5 and 1:7 pit structures per room, although there is a fair amount of variability. In a number of cases, it is not clear whether the ratios we obtained approach the actual situation at the time of occupation or not. To resolve these questions, it would be preferable to examine changes within sites through time, as well as suites or households in terms of room numbers. If, as in most cases, the number of pit structures does not decrease through time, the question, "what did they do with this space?" remains.

It has been noted that despite the decrease in floor features in these structures, the frequency of ritual closures or sealed-in offerings apparently does not increase. At the same time, wall plastering appears more frequently in these masonry-lined structures than in their soil-walled predecessors, an increase associated with the appearance of murals on the walls. Although some might take the murals as evidence of more frequent ceremonial use of these structures, it is difficult to determine this since no consistent occurrence of sacred fixed furniture was found that was clearly distinguishable from that contained in structures of earlier periods. Among the modern Pueblos, frequent plastering of kiva and ceremonial room walls is present (Mindeleff 1891:126), yet E. C. Adams (1982: 13) notes that religious rooms at Walpi, which include several types of aboveground rooms, commonly have fireplaces, grinding bins, and devices for erecting vertical looms as well as numerous wall niches. The presence of domestic features in pit structures from the middle 700s through the 900s tends to obscure the fact that numbers of offerings and caches have been found in these structures, indicating ceremonial activities.

In addition to numerous coats of plaster, more evenly laid and shaped stone masonry set in thinner layers of mortar occurs in early 1100s pit structure walls than in contemporaneous aboveground room walls. Greater effort was expended on 1100s pit structure masonry, even though most of these walls were at least partially covered with plaster.

With respect to fixed features, only one foot drum occurs in a small site pit structure. Kiva 5 at Bc 59 dates to the late 1000s or early 1100s and is among the group of large pit structures evidencing Classic Bonito Phase "town" pit structure characteristics. At the same time, north wall niches appear and sipapus become less frequent. In the Mesa Verde area these features co-occur in 1100s-1200s houses, while in Chaco, the niches replace the sipapus, a pattern that seems also to be present at Pueblo Bonito. These north wall niches are also present in modern kivas, although in Acoma, at least, they are larger in size. Possibly the shelf on the south side of modern Hopi kivas above the platform area forms a structure analogous to a southern recess.

Few activity areas with portable artifacts have been encountered and none from the later time periods are well documented. It has also been mentioned, possibly due to a bias in our data, that a similar number of ornament and turquoise caches have been recovered from both early and late pit structures.

Although it seems as if the limited information summarized above presents a conflicting picture, I disagree with those claiming that work continued as usual in these empty structures. The relocation of numerous features into the aboveground rooms indicates that the usual accoutrements for preparing meals, grinding corn, etc., were moved permanently. Such activities as corn grinding may have continued to take place in pit structures, but fixed bins in aboveground rooms indicate that pit structures were no longer the preferred locations for such activity. The most disconcerting aspect for many archaeologists is that the number of pit structures remains the same despite the change in form. For most periods, the ratio apparently remains one pit structure to every one or two room suites (of two to three rooms each), except during the 500s-600s when pithouses seem to represent single extended family dwellings. This frequency clearly implies a different use and religious structuring than is apparent in modern pueblos. Most Chaco small sites are also in great contrast to modern pueblos in that they consist of from one to three suites. Florence Hawley Ellis (personal communication 1980) notes that during the 1300s when a consolidation in pueblo pit structures occurred, it became necessary to protect these sacred structures from raiders. During this period, and subsequently during the arrival of the Spanish in their midst, Ellis believes that there was a tremendous reduction in the numbers of kivas, a paucity that has survived to the present day.

Some have suggested that pit structures continued to shelter one or two families in the winter months. The presence of heating or fire pits in most mealing rooms in roomblocks indicates that work also continued in these areas. Generally these pits were not suitable for corn parching, an activity that is logically seldom conducted indoors. (McKenna [1984:76] believes there are rooms at 29SJ 1360 in which indoor parching was conducted.)

It has been suggested by others (Rohn 1981; Schroeder, personal communication 1981) that in comparison with other portions of the San Juan area Chacoan kivas were late in emerging. There may be some truth to this suggestion if the Basketmaker III/Pueblo I occupation is compared to Alkali Ridge and the Yellow Jacket and Dolores areas. This seems a highly relative and simplistic comparison, however, since in many respects Chaco small site development and associated material culture was comparable to other portions of the region during this period.

The possible seasonal use of the small sites in the canyon might account for the lack of urgency in enclosing aboveground work areas. Yet despite suspected seasonal occupation of houses on the upper reaches of the Mesa Verde, aboveground work areas there were enclosed well before those in Chaco, and the pit structure to kiva transition took place between 50 and 100 years earlier.

Pit Structure Types

Isolated Pit Structures

Several sites including 29SJ 299, 29SJ 629, and 29SJ 721 have pit structures that appear not to have associated rooms. There is little to say beyond the fact that within a short distance or within the confines of the site, nothing dating to the period indicated could be found. There seems to have been a brief period of use of the rooms associated with the kiva at 29SJ 629; the structure was probably built in the middle 1000s. There remain several other examples, such as Kiva B at 29SJ 299, the kiva at 29SJ 721, and possibly Kiva A at 29SJ 1360, which are considered to have been built after most of the site and had been abandoned (although in the case of 29SJ 1360, there is some question as to the actual entire extent of the site [McKenna 1984:36]).

Kivas

Square kivas. A single example of a possible "square kiva" was found at Bc 51. This room, originally designated Room 48 but mislabeled Room 53 during stabilization by Gordon Vivian, is located in the southeast corner of the site, immediately north of Kiva 7, and is connected to a meal room (Room 47) lying to the east (Figure A.22). Although Vivian, who excavated these rooms during stabilization, left no notes and poor photos, two drawings by Ray Rixey (1949) indicate that the door between rooms 47 and 48 was reduced in size, but no mention of its having been sealed is made. At the present time Room 48, although largely aboveground, contains a subfloor ventilator located on the south side of the room, a firebox located just south of the room's center, an ash pit or an ash-filled pit (with a slightly raised rim) along the north wall, and a box located adjacent to the southern portion of the east wall, which Rixey refers to as an "altar." This "altar" is a square masonry box of unknown size (similar in size to the hearth in the drawing, which is also of unknown dimension) with a small central square plug blocking a small central hole. Apparently the ash pit was filled with charred corn cobs (Rixey 1949). Three other pits of unknown type were excavated in this floor surface. Two postholes are located adjacent to the north segment of the west wall just north of the door opening; both are the same distance from the wall and perhaps 60 to 70 cm apart. These may have (1) formed a base for some sort of rack, (2) anchored a loom, or (3) been used for something entirely different.

Two rooms resembling Room 48 at Bc 51 were encountered by Gillespie and Akins in 1978 and 1979 at Una Vida while reclearing an area excavated by Gordon Vivian in the early 1960s. These rooms, 83 and 84, are described by Gillespie as "special use" rooms associated with the mid-1000s "burst in building activity at the site" (Gillespie 1980:12). Gillespie suggests there may be more such rooms at the site that were not cleared.

Great Kivas. Only two Great Kivas associated with small sites have been excavated within Chaco, both of which had beams indicating construction within the 500s (Robinson et al. 1974:39; Windes 1975a:45). Roberts (1929:73-81) reports the architectural details of the example encountered at Shabik'eshchee Village in 1927, and Windes (1975a) describes the second, excavated by the Chaco Center in 1973 at Site 29SJ 423 near the town of Peñasco Blanco. The 29SJ 423 example appears to have been constructed and remodeled twice within a 40- to 50-year period (Windes 1975a:45), while Roberts reports only one construction episode for the Great Kiva at Shabik'eshchee.

Briefly, a number of morphological characteristics of these two examples are in contrast to the remainder of pit structures described for this period. One immediately apparent difference is size, measured here by square meters of floor surface below the bench level. The floor area of the 29SJ 423 Great Kiva was successively reduced through remodeling from 74 m² to 61 m² to 58 m². The larger Shabik'eshchee example measured 87.6 m², but incomplete tree-ring dates from the structure's wall and bench uprights (Bannister 1965:191-192) do not allow precise size/time comparisons with the 29SJ 423 example. The mean floor area of other excavated pit structures for this period within the small sites in Chaco is 15.8 m² (sd=7.77 m², cv=48.6%), a figure that emphasizes the size dichotomy between these two semisubterranean structure groups. The largest house included in the "small pit structure" category (Pithouse C at Site 29SJ 628--not considered a Great Kiva), has an estimated floor area of 38 m², or if the antechamber area is included, 44.6 m². Despite a size difference of only 13 to 20 m² between Pithouse C at 29SJ 628 and the smallest Great Kiva at 29SJ 423 (a difference comparable to remodeling changes of the latter), there are other criteria that separate Pithouse C and another large pit structure (31 m²--House F-1 at Shabik'eshchee Village) from the Great Kivas in Chaco.

The two Chaco small site Great Kivas listed are circular in shape, have fully encircling benches, and have no signs of lateral entries or antechambers. The 29SJ 423 Great Kiva has two pits located near the central hearth, which Windes suggests may have functioned as ladder rests (1975a:35-36), a feature that was encountered in only one pit structure from this period. None of these features was encountered in Pithouse C at 29SJ 628 or House F-1 at Shabik'eshchee Village, nor do they co-occur in other A.D. 500s through early 700s pit structures (Figure 2.5). The majority of these small pit structures at this time are D shaped or square, have either 3/4 benches or none, and have partition or wing walls enclosing the southern portion of the structure.

Obviously those attributes mentioned in association with the two Great Kivas described above are not distinguishing characteristics of all such Anasazi structures. Lateral entries, for instance, become extremely typical in these structures, whether they are Chacoan or otherwise. Such side entries are more frequently recorded in later Great Kivas than those considered here, but fewer examples from the 500s and 600s have been excavated. Additionally, not all small pit structures have lateral antechambers and entries. At Shabik'eshchee Village, Roberts (1929:37, 59) notes

that side entries or antechambers were at one time probably present (as in houses H and Q), even though they were not actually encountered during excavation. However, no sign of such features was encountered at houses I and O at the same site. The latter two houses are circular, although they lack benches and have only 7-10 m² of floor area.

Among the few floor features found in association with these two Great Kivas were a central hearth and postholes for the roof uprights.

With only a sample of two excavated structures, no generalizations should be made about their construction; nevertheless, the characteristics distinguishing the two examples from the vast majority of "small" pit structures make the co-occurrence of "Great Kiva" attributes particularly noticeable. Some additional attributes may further distinguish these Great Kivas from other pit structures constructed contemporaneously, but insufficient evidence exists archaeologically. For instance, Windes (1975a:41-44) suggests that the 29SJ 423 Great Kiva had never been fully roofed, i.e., the central portion remained open. Unfortunately, Roberts was unable to describe the roof of the Shabik'eshchee example, despite the fact that a large burned portion remained. Interestingly, the roofs of the Great Kivas at 29SJ 423 and Shabik'eshchee were burned, a phenomenon extremely rare among regular pit structures.

The controversy concerning the inclusion of either Shabik'eshchee Village or Site 29SJ 423 in the category of small sites has already been discussed. The extensive, densely clustered houses that are present at both sites, although certainly not unique within the Southwest during this period, are unusual. The simultaneous construction that took place within the excavated portion of Shabik'eshchee may have never exceeded four or five houses, though these and the unexcavated houses that extend to the south obviously represent a large settlement, one uncharacteristic of the size of population or the general level of cooperation of this period. Poor dating of the site and the lack of ceramic data make it impossible to determine the extent of the site in use simultaneously. Generally, or perhaps exclusively, Great Kivas, regardless of their period of construction, are found in areas where either numerous and/or large sites cluster or the prehistoric population is considered to have been extensive.

Both of these Great Kivas are partially or perhaps entirely lined with upright slabs--a form of building that combines post and slab construction (encountered in the Shabik'eshchee example) (Roberts 1929:78-79).

Table 2.27 presents a list, undoubtedly very incomplete, of Basket-maker III/Pueblo I Great Kivas and large pithouses, sometimes referred to as "great pithouses" (Kane, personal communication 1981), frequently encountered in southeastern Utah and southwestern Colorado. It is not clear whether Pithouse C at 29SJ 628 or House F-1 at Shabik'eshchee Village would qualify for this category, for each seems to lack the associated ceremonial floor features noted at the Dolores Archaeological Project (SW Colorado) for example.

Table 2.27. Excavated Basketmaker III/Pueblo I Great Kivas and "Great Pithouses."

[illegible]

Unexcavated small sites in Chaco suspected of containing Great Kivas include 29SJ 1253 (Pueblo II-Pueblo III) on the south edge of Marcia's Rincon, 29SJ 457 (Pueblo I) on ridge southeast of Padilla Well, and 29SJ 352 (Pueblo I-III) also south of Padilla Well.

ABOVEGROUND ROOMS AND RAMADA AREAS

Introduction

Some rooms, referred to as aboveground or surface, have floors recessed below postulated prehistoric ground surface levels. Storage rooms constructed prior to A.D. 1000 typically had floor levels located 30 to 65 cm below adjacent ramada and plaza surfaces. Usually this semisubterranean character does not create confusion between what might be considered an aboveground room and what is designated a pit structure, except in one or two cases.

A more critical distinction, referred to repeatedly in the following discussion, is the division of aboveground rooms into the gross categories of "storage" and "living." The question of room function has been an obvious focal point for many Southwestern archaeologists, who have evaluated various types of data related to portable and non-portable material culture. In this study, the storage/living separation is made largely on the basis of the number and types of floor features present in a room. Additional criteria, e.g., the room's position within the house block, room size, shape, and floor level depth, become important in a general categorization, particularly in within site/between room comparisons and within room suites. Correlations among function, location, and changes through time are treated in the summary of room form organized according to ceramically derived time periods. Due to time constraints and lack of comparable data, portable artifact distributions and associations are considered only briefly in primary contexts. Architectural variability suggesting function is touched upon in a section dealing with "specific room use." Although this level of separation may seem extremely crude, even it became unusable in the late 1000s/middle 1100s sample, where little reliable floor feature data were available.

Aboveground rooms (for much of the time period considered here) are generally not separate units as are pit structures. The remodeling of a single room is rarely encountered, although single room additions are not uncommon. Archaeologically, remains of multiple occupational surfaces become extremely confusing without associational information, and by comparison our understanding of aboveground room development within sites unexcavated by the Chaco Center is frequently chaotic. Even where published or unpublished information exists, it is often incomplete, thus the establishment of the temporal association of many of these units is nearly impossible. The sample that forms the basis for the initial comparison of

aboveground architectural attributes is far weaker in terms of temporal placement than that of the pit structures.

Chronology

The list of dominant ceramic types defined by relative time period has already been presented in Table 2.3. The categories used for pit structures are also appropriate for the determination of temporal associations for rooms. In this case however, consideration was given to changes in architectural attributes rather than limited to the evidence of last use as indicated by floor contact materials. Frequently, very few sherds were obtained from the fill of rooms and even fewer documented. As in pit structures, few datable pieces of wood have been recovered from rooms. When Windes returned to some previously excavated sites in search of suitable hearths for archaeomagnetic dating, the evidence of hearths or firepits within aboveground rooms was so sketchy that those of pit structures were more frequently sought. Additionally, the traditional (and therefore predictable) location of pit structure hearths was a time saver. For these reasons, there are few dates from small site aboveground rooms. Firepits in the latter rooms uncovered in the center's small site explorations often did not yield dates, which further dissuaded Windes from seeking them out in previously excavated sites.

The pattern of reuse and remodeling already described for pit structures is even more apparent in aboveground rooms. Persistent occupation and renovation of house locations typifies Chacoan small sites. Once a site was established, it was often occupied for 200 or 300 years, a factor possibly attributable to the initial positioning of such settlements adjacent to land suitable for dry farming. Limited amounts of this resource probably account for the tendency to remain in one location. These long-lived sites, as might be expected, were not only remodeled, but materials were reused extensively in construction. In these renovation efforts, trash was frequently used to fill lower floors and build up new surfaces. This fill, although not specifically associated with a surface, was useful in providing a date for final activity in the area. After a site was completely abandoned, building materials were frequently removed for use elsewhere. Although this practice is apparent in other Southwestern prehistoric (and historic) pueblos, the paucity of locally available resources in Chaco seems to have intensified the reuse of nonlocal materials.

The incidence of burned roofs in rooms is as infrequent as it is in pit structures. No close examination of the number of rooms evidencing burned walls was made, but it may be that even burned roofs were salvaged for charcoal. It seems unlikely that the high risk of ceiling fires was any less in Chaco than in any other portion of the Anasazi area, particularly considering the common occurrence of firepits in fully walled rooms, seemingly far more frequent than at least some contemporary sites in the Mesa Verde area.

The dating difficulties have reduced the potential for architectural feature comparisons in rooms. Based on the Chaco Center's original objectives of examining chronologically sequential sites, data on changes in site layout through time are available for a restricted sample. These data become scarce after the late 1000s - early 1100s, a time of extensive construction at large sites. Ironically, many of the Bc sites in the vicinity of Casa Rinconada continued to be inhabited and built onto during this period. Despite the relatively large numbers of excavated small sites, the extremely poor recording methods used yielded little information.

Features and Construction

Firepits

All of the criteria listed above are used in the living/storage room separation. Generally living rooms possess numerous features, however, firepits (of moderate depth requiring a certain amount of labor investment) are the most critical in this classificatory distinction. Firepits of 20 cm or more with slab and/or plaster lining indicate a degree of permanence; presumably intended for long-term use in heating and cooking, they are located in food preparation and work areas. In theory, this obviates problems that arise from examination of the intensity of burning since construction is a variable of planned function rather than actual utilization. As a permanent fixture for cooking and heating, a firepit would probably have been constructed deep enough to accommodate the bed of ashes on which to build subsequent fires, or to facilitate banking a fire overnight. The 20-cm cutoff thus derived is based on the conclusion that most unplastered, scooped out pits (within rooms) with burning are only 6 to 10 cm or occasionally 15 cm deep. This is not to say that shallow firepits did not occur in living areas, or that rooms without firepits never functioned as living rooms. The latter were generally mealing rooms comprising a very small portion of the sample.

Firepits evidencing considerable labor investment are found in pit structures even after most of the accompanying floor features have disappeared and domestically related tasks requiring this fixed furniture are reduced. There is thus some duplicity in this division unless other domestically related features are considered. Additionally, storage features such as bell-shaped storage cists occur with firepits in rooms designated as living areas; however, large volume cists are generally not found in the same rooms as well-built firepits.

Until the middle 1000s, only shallow, unlined and unplastered firepits are found in the back rows of storage rooms and these, in only one or two sites. These small, slightly/used firepits may indicate the need to heat these areas occasionally by using already warmed rocks or hot coals. Evidence of intense fires having been built in these pits is lacking (Truell 1980:VIII-6, 7).

Living Rooms

Living rooms, often plaza-facing, frequently had floor levels equivalent to or continuous with the adjacent plaza surfaces, and possess a variety of floor features, usually including a firepit.

Ramada Areas

Living/work areas of the middle 700s through early to middle 900s are frequently referred to as "ramada" areas. These consist of portions of the plaza surface that were covered with light roofs supported on posts. Occasionally these areas were bounded by thin low adobe walls placed exterior to the supporting roof posts. The latter are not found incorporated into these adobe walls. In one case (29SJ 724), the floors of two such areas are recessed below the surrounding ground surface, perhaps as an adaptation to its ridgetop location. Due to their light superstructures, ramadas are thought to have had some seasonal constraints in their utility, while associated pit structures were serviceable as living/work areas year round. Ramadas contain floor features similar to the fully-walled masonry living rooms that replaced them.

Storage Rooms

Until the middle 1000s, storage rooms are generally consistently located west or northwest of the rest of the cultural features within a site unit, regardless of whether they are detached units (as early examples) or are joined in a row behind living and work areas. The floor surfaces are located slightly deeper than plaza-facing living rooms. Storage rooms generally lack features and/or have large volume storage cists set in their floor.

Because of their oval plan and dish-shaped cross section, storage rooms have occasionally been referred to as "tub-shaped" or "tub" rooms, but the applicability of this term is restricted temporally. This shape has been most consistently noted in excavated examples dating to the middle 700s through the early 900s. Earlier (500s through 700s) storage rooms are just as frequently circular as oval in plan, while post-900s examples tend to be increasingly square or rectangular in shape.

Room Suites

Subsequent to the middle 1000s, room suites or architectural units with communicating doorways, or other identifiable boundaries, are viewed as single households, a term used to avoid the presupposition of the exact nature of the biological relationship (Ciolek-Torrello and Reid 1974). It

seems undeniable that there was some type of biological and cultural relationship among the occupants of the suites within these two- to three-unit dwellings, located very close to each other; however, the nature of these relationships among these sites is obviously not documented. Estimates of the number of occupants of such units and methods used for deriving these estimates vary (Clarke 1974; LeBlanc 1971; Naroll 1962; Reynolds 1978). A commonly accepted estimate for such units, based on modern Pueblo family size, is five to seven people. It should be noted that the number of rooms per suite and their spatial arrangement do not conform to those described for prehistoric small sites.

During the 700s through 900s period in Chaco, room suites consist of a ramada area with two adjacent storage rooms generally located to the west. The combined length of the two storage units equals that of the living surface. The living/work ramadas are generally not internally segmented; their peripheries are occasionally bounded by upright slabs or in some cases, low adobe walls. In early examples (700s-900s) where adobe construction predominates, passages that would establish relationships between living and storage areas within these units are not always discernible, although interconnection is definitely present at several small sites (29SJ 627, Three-C site, 29SJ 724; Figures A.7, A.8, A.11). The layouts of numerous small sites suggest internal segmentation of this type extending up until at least the early to middle 1000s. Generally by the late 900s or early 1000s, the room walls were comprised of flat-laid masonry. In two sites (29SJ 627 and the Three-C site), doorway connections indicate a use of space similar to that noted previously. Some houses constructed in the early 1100s maintain this spatial arrangement well into the twelfth century (29SJ 633, Bc 53?, Bc 57?).

Although little is known about early examples in town sites, there are apparent distinctions other than scale (i.e., room size) between large and small site room suite composition. Lekson notes that large site suites in the late 800s or early 900s consist of three rows of rooms (rather than the two rows typical of small sites), the back two rows of which are two and possibly three stories high (Judge et al. 1981:10-17). All aboveground rooms are thought to have been fully enclosed masonry rooms in contrast to open-sided, brush covered ramada/living areas and semisubterranean, mud-walled storage rooms found in small sites of this period.

A further distinction apparent between large and small sites of this period is the presence of more suites in large sites. This pattern of household organization is not as easily perceivable in later large sites, but it is apparent that the same suite layout and orientation persists in small sites through at least the middle 1100s. In one small site (29SJ 627), the ramada area, which originally extended the full length of its two adjacent storage rooms, became subdivided after masonry walls were built in the late 900s or early 1000s. The subdivided area continued to be used as a living/work area, and these two living rooms maintained their association with the same suite, connected both to it and to the two originally associated storage rooms by doorways. By definition, doorways do not connect the suites themselves.

A.D. 500s--Early 700s

The only "aboveground" rooms associated with this period are small, semisubterranean bins or cists that were typically built to the north, west, or northwest of associated pit structures. Square to rectangular, slab-lined hearths built on the plaza surfaces between the bins and pit structures form the precursors of ramada areas, but these are not enclosed in any way and are only occasionally protected by upright slab windbreaks.

The Sample

Excavated sites in Chaco, which include bins thought to have been used principally for food storage and constructed during this time period, are as follows: Shabik'eshchee Village (29SJ 1659), 29SJ 423, 29SJ 299, and 29SJ 628. Additional examples from this period may also be present beneath the Bc 50/51 trash mound and at 29SJ 721. Plan views of the following sites, with the exception of 29SJ 721 are shown in Figures 1.8, 1.9, 1.11, 1.12, A.88). The suggested function of these features is discussed below, principally in the section considering form and feature association. Similar examples have been found outside Chaco that, at the time of excavation, still contained the stored foodstuffs within them.

The temporal placement of several bins remains unclear. A single, tentatively dated example from beneath the Bc 50/51 trash mound was examined in the 1936 and 1937 tests into the southern portion of the site. Hawley noted (Brand et al. 1937:Figure 7, 165-166) trash deposits containing exclusively Basketmaker III ceramics in the immediate vicinity of this cist and a nearby pithouse known as "Bliss's Folly" or M.Or.#3. The architecture of this pit structure and its possibly associated bin (along with that of another pit structure to the northeast known as "Lister's Pithouse") suggest A.D. 600s construction similar to that elsewhere in the canyon. The extent of the settlement in this area remains unknown. There is virtually no information on the excavated structures.

Although Pithouse C at Site 29SJ 721 was occupied in the A.D. 600s, Windes (personal communication 1978) believes that most of the slab-lined bins and cists in conjunction with Pithouse A were either constructed or continued in use until the middle 700s. The latter has an archaeomagnetic date from the central hearth of A.D. 765 \pm 25 years. Despite the fact that a series of charcoal samples from one baking pit (Cist 4) yielded incomplete dendrodates that place the use of this pit sometime after A.D. 631, Windes concludes that the dates are probably from beams removed from Pithouse C rather than from wood procured for use in the cist (1976b:30). The clustering of the excavated cists to the west of Pithouse A (Figure A.6) suggests to Windes that they were probably associated with this middle to late 700s pit structure.

An arbitrary decision was made in the previous discussion of pit structures to include Pithouse A in the middle 700s through early 900s

period; therefore, the associated cists or bins were put in the same time slot.

Not all bins or cists present at Shabik'eshchee Village are included in the following discussion. Although it is the type site for Basketmaker III in the Anasazi region, portions of the Shabik'eshchee appear to have been constructed and occupied into the late 700s and 800s, during which time ramada development is noted and storage cists or bins become joined linearly. Particular examples that are not included in the 500s through early to middle 700s period are separated in Table A.1.

Cist Form

Table A.1 lists the dimensions and briefly describes some of the characteristics of individual bins or cists associated with 500s through early to middle 700s pit structures. Table 2.28 summarizes these data.

Size. Floor areas are summarized by site for the entire excavated sample in Table 2.28. As is apparent, variability in size as reflected by floor area is appreciable. The greater consistency in examples from 29SJ 628 may be indicative of the later date of the site, or it may simply be explained by the few fully preserved bins at the site. Within this period it is difficult to determine whether there are any changes in size. At some sites, although there is some superposition, there was generally enough available space to dig a new bin rather than superimpose one on another. This evidence makes it difficult to determine the order in which these features were constructed. Very few sherds are usually associated.

Shape. Although somewhat irregular in plan, bins of this period are predominantly circular (Figure 1.8, 1.9, 1.11, 1.12, A.88). The ratio of the width to length for all examples considered ($n=46$) is 0.863 ($sd=0.098$, $cv=11.4\%$) (Table 2.28). A few oval examples, much more common in subsequent construction, are noted at two sites (29SJ 628 and 29SJ 299) at which occupation continued into the early 800s.

Viewed in cross section, these features generally have dish-shaped bases with relatively straight sides or an inward slope continuing to the top of the subterranean portion of the walls. Little is known about the configuration of the superstructure of these features in Chaco.

Depth. Commonly referred to as storage cists, these bins vary in the depth of their subterranean portions from 10 or 15 cm to 75 cm. The shallowest examples may have lost portions of their upper wall to erosion or damage prehistorically. Of the 47 examples recorded, the mean depth is 56.45 cm ($sd=21.42$, $cv=37.94\%$) (Table 2.28). The variability in location, which may have affected pit structure depth through time, apparently did not govern these shallower features. The greater mean depth and the slightly

Table 2.28. Summary of storage cist dimensions: 500s-early 700s.

| <u>Site</u> | <u>Length</u> | <u>Width</u> | <u>Floor Area</u> | <u>Depth</u> |
|--------------------|--------------------------------------|---------------------------------------|---------------------------------------|---|
| Shabik. Village | n=32, mean=1.83 sd=.374, cv=20.4% | n=31, mean=1.62 sd=.365, cv=22.54% | n=31, mean=2.42 sd=.97, cv=40.17% | n=33, mean=62.37 sd=20.85, cv= 33.43 |
| 29SJ423 | n=3, mean=2.46 sd=.52, cv=21.1% | n=3, mean=1.93 sd=.455, cv=23.58% | n=3, mean=4.63 sd=1.9, cv=41.04% | (only two cases) |
| 29SJ299 | n=8, mean=1.78 sd=.37, cv=21.49% | n=8, mean=1.49 sd=.294, cv=19.75% | n=8, mean=1.91 sd=.85, cv=44.50% | n=8, mean=47.50 sd=15.35, cv= 32.32% |
| 29SJ628 | n=5, mean=2.09 sd=.695, cv=33.28% | n=4, mean=1.773 sd=.219, cv=12.35% | n=4, mean=3.40 sd=.88, cv=25.88% | n=4, mean=41.75 sd=13.72, cv= 32.86% |
| <u>TOTAL</u> | n=48, mean=1.88 sd=.44, cv=23.61% | n=46, mean=1.63 sd=.355, cv=21.80% | n=46, mean=2.56 sd=1.18, cv=46.08% | n=47, mean=56.45 sd=21.42, cv= 37.94% |

Note: Proportional indicies derived from width/length ratios (above the benches only): n=46; mean=0.863; sd=0.098; cv=11.4%. (Only 2 of the 46 had equal length and width.)

higher degree of homogeneity in depth noted at Shabik'eshchee Village may be related to the exposed nature of the site to both weather conditions and rodent disturbance. On the other hand, it may merely reflect a consistency of one group of builders in comparison to another. Site 29SJ 423, at the west end of the canyon (within the modern park boundaries) with an exposure similar to that of Shabik'eshchee, has only two excavated bins of measureable depths. There is no clear pattern of within-site depth consistency. The range of depth variability at 29SJ 299 is quite high (Table 2.28) and the reliability of the depth measurements is comparably suspect, although the preservation here may be better than in the other sites. At other sites there seems to have been more diversity in within-site construction. It is not clear whether there is variation within this period of construction that may have affected depth. Finally, there is no indication of other formal attributes associated with bin depth.

Construction. The shallow subterranean walls of these features are generally lined with large upright slabs, the bases of which are sunk a short distance into the bin floor, and the broad interior surfaces of which are covered with thick coats of adobe plaster. Slab lining of Shabik'eshchee Village bins is, in most cases, entire in its original construction (Table 2.28). A smaller sample of bins is either partially slab-lined with adobe covering both the lined and unlined walls (29SJ 628, Cists 1 and 2), or of completely adobe plastered walls dug into the native soil (i.e., Shabik'eshchee bins 16, 27, 31, 36, and 44). At Site 29SJ 299, by contrast, all 10 examples surrounding Pithouse A (Figure 1.9) have native soil walls with no sign that adobe plaster or slabs had ever been used to finish their interiors. The latter also lacked either adobe plaster and sandstone flagstone or flagstone and plaster finished floor surfaces, features which all the examples from other sites contained.

The inward cant of the tops of the walls of some of these bins has also been noted previously. Nothing is known about the superstructure of most of these features in Chaco. Morris notes two roofs on slab-lined storage cists in Canyon del Muerto with "juglike necks of adobe resting on the slab tops, reinforced with sticks" (1925:270). The openings in these necks were plugged with circular stone slabs. Several cists or bins at Shabik'eshchee Village have lateral benches (or "shelves") that completely line the interior of the bins, the tops of which are recessed below the exterior feature walls. These benches are essentially steps carved into native soil. It is possible that some sort of superstructure may have rested on these lateral indentations, but Roberts makes no mention of post-holes or similar indentations on these surfaces, nor have any remnants of plaster collars been encountered, although these may not have been preserved had they existed. In storage bins of the subsequent period, lateral benches or shelves become quite commonplace.

One well-preserved, deep, bell-shaped example, (Cist 6 at 29SJ 299) had a step down into it through a narrow entry and retained the impressions of the bent sticks (3 cm in diameter by 30 to 50 cm spaced at 10 cm intervals) originally used to support the curving native earth sides, the sticks themselves retaining vestiges of the adobe plaster. Although this struc-

ture indicates the type of covering the cist may have had, the feature is unusually deep with more accentuated flares to the walls than other examples, suggesting that its roof form might not be applicable to other bins.

No lateral steps in addition to the set in Cist 6 were encountered, although some might view the benches described in the Shabik'eshchee Village examples as similar. One rectangular bin (Room 9 at Site 29SJ 299) contained an extremely narrow passageway communicating into a small circular cist described as resembling a ventilator shaft (Loose 1979:65). Although this "room" contained no hearth, it is possible that air circulation would be desirable for some other purpose. It seems unlikely, based on the size and shape, that it was a pit structure.

Hearth/pit/bin distinction. Extramural (outside pit structure) hearths found in sites of this period are generally small, square slab-lined features. These contrast with roasting pits, of much the same size, shape, and construction as storage bins, but distinguished by both noticeable outward flares in the slabs lining them (Windes 1976b) and the presence of intense burning. The outward cant of the roasting pit walls seems to be a consistent enough characteristic to argue that these pits were not generally reused storage cists.

Storage bin floor features. No firepits or slightly burned, scooped out pits are noted in the bins associated with this period. The only features recorded are circular cists, either bell-shaped or straight-sided in cross section. These features were encountered in bins at sites 29SJ 299, 29SJ 628, and Shabik'eshchee Village. Apparently neither the bins nor the cists within them contained stored materials of any type. Roberts (1929) does not mention any artifacts found in association with the Shabik'eshchee Village bins. The only vessels recovered include portions of Lino Gray seed jars, found in Room 2 at Site 29SJ 299 and in Storage Cist 1 at 29SJ 628, although subsequent to McKenna's initial reconstruction efforts, more may have been located during ceramic analysis.

Generally these floor features retain none of their original contents and, due to their shallow open character, tend to collect alluvial and post-occupational cultural material.

No pollen and flotation samples were analyzed from the excavated bins of this time period, nor, for reasons mentioned previously, would their shallow exposed nature be liable to yield much information.

Form/function associations. Slab-lined features like those present at Chaco have been found elsewhere with stored foodstuffs remaining within them, often in surprisingly well preserved condition. Although good preservation is usually encountered in rockshelters or overhangs of some type, there are characteristics of the Chacoan features that may be of assistance in the protection of stored food. In addition to locational considerations, ideal storage facilities would provide temperature, humid-

ity, and (light?) control, and protection against vermin infestation and rodent predation.

The upright slabs found in Shabik'eshchee Village bins may not only have prevented lateral collapse of the walls in the sandy stratum, but may have provided protection from burrowing rodents.

Akins suggests that the greatest threat to food from rodents may have been posed by Peromyscus sp., perhaps the boldest of this group, and which she has noted in association with living room floors at Pueblo Alto (Akins 1982:20). Bailey (1931:144) suggests that these mice may not dig burrows themselves, but may reuse those made by other animals; however, the evidence, primarily at Old Pueblo Alto, suggested that they might have put in some shallow tunnels in loosely compacted sand (Akins 1982). Akins notes that a thick coat of adobe plaster or closely set slab construction, common in both wall and floor constructions of these bins, would have provided some protection against invasive tunnels.

Whether the subterranean construction protected the stored foods from frost damage or moisture (seemingly unlikely) is not known. No precise figures with respect to the depth of frost penetration were available for the period.

Subterranean storage facility construction is maintained through time in many (but not all) small sites. Even when joined to living rooms in a roomblock, the storage room floors are always about 30 to 60 cm below the living surface.

Plaza areas. The location of firepits in the plaza areas between pit structures and storage bins (sites 29SJ 628 [n=2], 29SJ 299 [n=1], Shabik'eshchee Village [n=3]?) is considered a forerunner for the establishment of ramada/living areas in these portions of the site. Roberts (1929:96) notes the consistent placement of firepits near pit structures (houses) and close to storage bins on the south or east sides of structures where they would be protected from the prevailing winds; however, the sample of firepits is small, and their locations are more erratic than Roberts describes.

Middle/Late 700s--Early/Middle 900s

The Sample

The first examples of storage bins joined to one another in crescentic rows, a single room wide, occur in Chaco in association with unwallled, lightly roofed work areas and pithouses and appear in the late 700s and early 800s. Excavated sites that have complexes of this type and period include 29SJ 299, 29SJ 625, 29SJ 627, 29SJ 629, 29SJ 721, 29SJ 724, 29SJ 1360, and Shabik'eshchee Village (see Appendix A, Figures).

Shabik'eshchee Village undoubtedly has more units of this period than the House C complex shown in Figure A.93, but none has been fully excavated. Additional partially excavated units of this variety have been encountered beneath the northern portion of the roomblock at Bc 50 (Brand et al. 1937:81-84; Glenn 1939:166-174; Senter 1939) (Figure A.94), beneath the central section and possibly to the northwest of Bc 51 (Figure A.104), and beneath the refuse mound between these two sites (Brand et al. 1937:166-169; Chaco Center Archives nos. 015, 194-203, 215-228, 1738) (Figure A.88). Sites 29SJ 299, 29SJ 721, 29SJ 628, and Shabik'eshchee Village (Figures 1.11, 1.12, A.91) had presumably "continuing" occupations from the 500s or 600s. Sites such as Bc 236 (Bradley 1971), Half House (Adams 1951), and Judd's Pithouse No. 1 (Judd 1924) located beneath Bc 53 (??), contain excavated pit structures of this period, but nothing is known of their associated rooms.

Transition. There is an unfortunate gap in the architectural record of dated and excavated sites in the early to middle 700s when the transition from separated to agglutinated storage rooms took place, i.e., the period immediately previous to the one Gladwin (1945:35) identifies as the transition from White Mound to Kiatuthlanna phases or Basketmaker III to Pueblo I. Gladwin rather specifically fixes the transition at between A.D. 785 and 801 at White Mound Village (Gladwin 1945:35). Although there has been additional information amassed in recent years that complicates the fixing of a transition date from Basketmaker III to Pueblo I, temporal pinpointing of the change to agglutinated rows of rooms within the canyon is still imprecise. It does appear to have occurred rather rapidly (within 50 or so years), despite the fact that joined rooms may have been differentially adopted within that time. In Chaco, the Pithouse A complex at 29SJ 721 (Figure A.32) and some of the pithouses at 29SJ 628 (Figure 1.11) may date to this period. Both evidence previous 600s occupation, and neither has the agglutinated rooms noted in other late 700s sites. At 29SJ 628, close groupings of still separated bins may have been built in the late 600s or early 700s form, evidencing an arcuate configuration to the northwest of the houses and providing the only possible transitional form to that of the later storage rooms. The oval shape of this particular group of storage bins at 29SJ 628 is more reminiscent of the joined rooms of the late 700s/800s than the circular configuration consistently present in the 600s examples. At 29SJ 721, no closely spaced rows are noted, although bin clusters similar to those at Shabik'eshchee Village and 29SJ 299, dating to A.D. 600, are present.

At Shabik'eshchee, the period of 200 to 300 years of occupation within a relatively restricted area (the excavated portion) is marked by extensive reuse of pithouse/cist complexes. It is suspected that instead of consistently constructing new houses and bins in the pattern of less intensely occupied areas during this period, existing nearby storage bins were remodeled and reused with existing or newly constructed pit structures at this site. For this reason, the association of pit structures and storage bins is occasionally unclear. Nevertheless, the Pithouse C complex (Figure A.93), which appears to have been fully excavated, is similar to the house organization noted elsewhere in canyon construction of the late 700s or

early 800s. The reader should be aware, however, that this complex has no absolute dates, and that the assumption of its temporal association is based largely on architectural form. Pottery from this period has been noted at the site (McKenna, personal communication 1980), but not specifically provenienced. Roberts (1929:62) likens the pit structure associated with the House C complex to Protokiva House located on a low knoll northwest of much of the excavated portion of Shabik'eshchee Village. He dates both of these later than the other excavated houses, largely on the basis of architectural characteristics.

Temporal subdivisions. Gladwin (1945) defines several phases on the basis of architecture, ceramics, and dendrodates from excavations at White Mound Village and in the Red Mesa Valley. He subdivides the 700s through early 900s into three phases, including White Mound (A.D. 750-800 at White Mound Village [1945:37]), Kiatuthlanna (A.D. 800-870), and Red Mesa (A.D. 850-930). Ceramically and architecturally, the White Mound phase continues to be recognized roughly as Gladwin defined it within the canyon. Architectural evidence from this period dates to the middle or late 700s, but the actual inception of the predominance of White Mound B/w among the decorated wares is not precisely placed in time. Gladwin recognizes a transitional period in the late 700s, on the basis of the appearance of decorated Pueblo I pottery types, and concludes that this transitional period marks the end of the White Mound phase (1945:37), which he views as the shift from Basketmaker III to Pueblo I. No architectural attributes are considered as specific to this period.

The application of the term "Kiatuthlanna Phase" has undergone some adjustments. The use and distinctions between the ceramic types Kiatuthlanna B/w and the roughly or partially synonymous Early Red Mesa B/w used within Chaco is summarized by Toll and McKenna (1981b:7-8). Regardless of how the phases are adjusted, there seems to be a period in the early to middle 800s that is not well understood ceramically in Chaco, and although portions of a few excavated sites (e.g., 29SJ 627 and 29SJ 629) appear to date from this time, corroborating absolute dates are lacking. There is a consensus among Chaco Center ceramics experts, however, that among the decorated wares Early Red Mesa B/w continues in use until the early or middle 900s. For purposes of this report, small site architecture dating to the White Mound and Early Red Mesa (or Kiatuthlanna) phases have been combined. The distinctions apparent in ceramics are less so in the architecture from the dated excavated sample.

Red Mesa B/w becomes the dominant decorated ceramic type in the late 800s, gaining greatest popularity in Chaco in the early 900s (Windes 1987a: Table 1). Gladwin's estimate (1945:63) of the duration of Red Mesa B/w within the canyon has been modified by recent studies (Breternitz 1966; Toll and McKenna 1981a, 1981b, 1982; Windes 1978a), which show Red Mesa B/w lasting until at least the middle 1000s when it occurs in a mix with Gallup B/w. At small sites in the canyon, Red Mesa B/w continues in use until the late 1000s.

Storage Rooms

Form and construction. The term "storage room" is used in this instance as opposed to "cist" or "bin," since by this time (middle 700s-middle 900s) these units are joined to one another and appear to have been roofed to full or near-full height. In the A.D. 800s examples, the side walls appear to have been extended upward into a flat or pitched roof that allowed entry, as opposed to the postulated flat roofs resting directly on the tops of the low upright slabs of the earlier bins. Perhaps with the increase in storage room size in the 700s, fixed roofs facilitated access to these areas.

Patterns of construction for storage facilities show more variability among sites as well as greater within site/within suite complexity than noted in the previous time period. Low artifact yields, including botanical and faunal remains, characterize these rooms in Chaco and have traditionally done so for morphologically similar, contemporary examples elsewhere in the Anasazi region. While empty rooms (i.e., storage) suggest numerous potential uses (Lekson 1982a), they do limit specific functional information that could otherwise be attached to such diverse proveniences.

In the following discussion, storage rooms are described with reference to all excavated examples (Table A.2) and subsequently examined according to specific identifiable room suites (Table A.4). The suites included are restricted to those with low walls defining the limits of associated work areas (ramadas), i.e., bounded ramadas (Table 2.29). A general examination of possible inequities is made of this sample selection, a consideration since these room suites provide the only available data on the storage/living space ratios of the individually constructed dwellings. Apart from these restrictions, actual use space within multi-unit dwellings is not strictly limited to the individual units within that house, regardless of whether aboveground work areas are bounded or not.

Size. Storage room lengths and widths are listed in Table A.2, and the sample means are summarized in Table 2.30. The mean width to length ratio is 0.61 ($n=15$, $sd=0.13$, $cv=21.31\%$), indicative of the more elongate character of these rooms during this period. This proportional index is discussed further in the following section on "shape."

The lower, generally subterranean portions of the floor areas of rooms associated with this period were measured. The lateral benches or shelves often found encircling these structures are thought to have seated either leaning roof support posts or adobe turtleback walls forming or supporting the roof, and are not included as usable space. Existing wide benches or shelves may have accommodated stored materials, but no compensation for this additional usable space was made in floor area comparisons. In many cases (e.g., at 29SJ 627) the width of these benches may have been altered in remodeling and so does not reflect the original structural configuration.

252 Small Sites

Table 2.29. Room and ramada/plaza dates: Late 700s-early 900s.

| <u>Site</u> | <u>Provenience</u> | <u>Date (A.D.)</u> |
|-------------|---|---|
| 29SJ627 | Room 8, Floor 3, Heating Pit 1 ^b [Pithouse C, Floor 1, Heating Pit 2 | 700s-800s ^a (Archeomagnetic) - 795+42 (Archaeomagnetic)] |
| 29SJ629 | Room 9, Lv 1-2 Room 9, Floor 1, Firepit 1 (earlier burn) | 720np-792vv Ponderosa Pine 800+30 (Archaeomagnetic) |
| 29SJ721 | Cist 4 (series of "very variable" dendrodates; all pinyon pine; latest of which = 492fp-621++vv) ^c ^b [Pithouse A - | 765+25 (Archaeomagnetic)] |
| 29SJ724 | Room 9, Floor 1, Firepit 1 Ramada, Firepit 2 ^b [Pithouse A, Firepit 1 - ^b [Pithouse A, Firepit 3 - ^b [Pithouse A, Firepit 4 - ^b [Pithouse A, Firepit 5 - | est. middle 800s ^a (Archaeomagnetic) 760+42 (Archaeomagnetic) 790+37 (Archaeomagnetic)] 885+31 (Archaeomagnetic)] 790+37 (Archaeomagnetic)] 800+17 (Archaeomagnetic)] |
| | (Pithouse A firepits = all plastering of | the central hearth--see Windes 1976b) |
| 29SJ1360 | House 1, Room 11, Floor 1, Firepit 1 | early 900s ^a (Archaeomagnetic) |
| Bc 50 | Room 15 ^d [Feature 5 (pithouse) - | 818-928vv Ponderosa pine; (Bannister 1965:132; Robinson et al. 1974:41): also reported as 922+ (Brand et al. 1937:81) 777+10 (Dendro - wood type?, Chaco Center Archives #936:17) |
| Bc 51 | (no provenience) | 822p-967r wood type? (Robinson et al. 1974:11) |

^a Large alpha values; unreliable date.

^b Where room-associated pit structure dates are available, these are listed on Table 3.4 in Part I of this volume, page 61.

^c See McKenna (1981b:60).

^d The location of Room 15 at Bc 50 is not shown on available excavation maps, nor is the location made known in the text.

If below-bench floor areas of all bins built within this period, which were not subsequently remodeled, are considered (Tables A.2, 2.30), the mean area is estimated at 2.94 m^2 ($n=27$, $sd=1.4$, $cv=46.9\%$) (without Cist 3 at 29SJ 721, Room 14 at 29SJ 299, and the Bc 51 substructure). Lekson (personal communication 1980) records a mean floor area of 10.7 m^2 for rear rooms at large sites between A.D. 900 to 940.

The generality of this small site mean value masks some interesting factors about the size variability of these storage rooms within sites.

In most cases, two storage rooms are thought to have been associated with the adjacent ramada of roughly equal length to them. Generally storage rooms are narrower than associated work areas. Within the nine or ten suites identified for this period, eight units consist of two rooms each; one, of one room; and one, of three rooms with a fourth added sometime during its use (Table 2.31). At sites 29SJ 299, 29SJ 724, and 29SJ 625, there seems to be a clear dichotomy in size between storage rooms within room suites. In these cases, one storage room in each pair is over 1 square meter larger than the other. At 29SJ 627, this dichotomy is not readily apparent; however, a difference in shape is discernible within the storage room pairs of the suite at that site.

Shape. The mean, above-the-bench, storage room width/length ratio of 0.61 ($sd=0.13$, $cv=21.31\%$, $n=15$), when compared with that of 0.863 of the 500s - 600s ($sd=0.098$, $cv=11.4\%$, $n=46$), indicates a more elongate, oval configuration, illustrating a greater degree of variability than seen previously. The earlier examples are consistently fairly circular in shape. The slight enlargement of storage facilities apparent in the late 700s over the 500s - 600s (mean floor area= 2.93 m^2 , $sd=1.37$, $cv=46.78\%$, $n=27$ versus 2.56 m^2 , $sd=1.18$, $cv=46.08\%$, $n=46$) and the agglutination of these features into rows may have dictated the shape that evolved from the pre-existing circular form. The preceding is based on the assumption that these structures represent temporal variations of the same features. In this floor area comparison it should be noted that the late 700s - 800s examples were measured below the lateral shelf level and the 500 - 600s above it. The reason is that most of the former had benches, while few of the latter did.

Above and below shelf shape comparisons within single examples are only possible in a restricted number of cases in which evidence indicates association of the existing upper walls with the tub-shaped room they enclosed. Either storage rooms had no shelves or upper walls were absent, and therefore accurate above-shelf measurements are not available. Occasionally evidence suggests that remodeling altered the original position of the walls. Although this might not greatly affect the shape of these structures, the imprecise measurements were not used to compute proportional indexes. In the five cases where both above and below shelf data are considered reliable (29SJ 629 and a few examples at 29SJ 724), four of the five show a greater narrowing below the bench, intensifying the elongate character of these features over their already oval shape.

Table 2.30. Summary of the storage room dimensions and floor area.

| <u>Max. Mean Length</u> (without Rm. 14 at 29SJ299) | | <u>Max. Mean Length</u> (interior, above bench) ^b (without Rm. 14 at 29SJ 299; using outer Rm. 15 dimen. at Shabik; with Cist 3 at 29SJ 721) | |
|--|----------|---|----------|
| n | = 28 | n | = 16 |
| mean | = 2.25 m | mean | = 2.44 m |
| sd | = 0.63 | sd | = 0.70 |
| cv | = 28.00% | cv | = 28.69% |
| <u>Max. Mean Width</u> ^a | | <u>Max. Mean Width</u> ^b (outer dimen.=Rm. 15, Shabik.; with Rm. 2 at 29SJ 721; without Cist 3 at 29SJ 721) | |
| n | = 28 | n | = 16 |
| mean | = 1.30 m | mean | = 1.43 |
| sd | = 0.36 | sd | = 0.48 |
| cv | = 27.69% | cv | = 33.57% |

| <u>Floor Area</u> (below bench) ^c | |
|--|--|
| n | = 27 (without Room 14 at 29SJ 299 and without Bc 51 substructure) |
| mean | = 2.94 m ² |
| sd | = 1.38 |
| cv | = 46.96% |

| <u>Width/Length Ratio</u> <u>Above Lateral Shelf</u> | | (without Room 14 at 29SJ 299 and Cist 3 at 29SJ 721) |
|---|----------|--|
| n | = 15 | |
| mean | = 0.61 | |
| sd | = 0.13 | |
| cv | = 21.31% | |

^a All measurable cists included; those with benches were included here with below the bench dimensions.

^b All measurable cists recorded above bench, where benches were present, full measurements were taken where no benches were present. If benches were present but the full above bench measurement was not known, the bench measurements were omitted.

^c Most floor area estimates were made with the use of a digital planimeter; all measurements were taken below the bench, where benches were present.

Note: Mean length and width calculated using original configuration of Room 6 at 29SJ 724 and the interior measurements of Room 15 at 29SJ 1659 (Shabik'eshchee) were used.

Table 2.31. Storage room suites: Floor areas.

| <u>Provenience</u> | <u>Room #</u> | <u>Fl. Area(m²)</u> | <u>Floor Area Diff.(m²)</u> | <u>Remaining Depth(cm)</u> | <u>Ave. Width/ Ave. Length</u> |
|--|----------------|--------------------------------|--|--------------------------------|------------------------------------|
| 29SJ299 | 13 | Est. 3.70 | | 9 | 0.48(est.) |
| | 14 | Est. 3.10 | | 15 | 0.46(est.) |
| | Total | 6.80 m ² | 0.60 | | |
| Rooms 12 & 15 were added onto either end of 13 & 14--probably not a suite | | | | | |
| (see text) | 12 | 2.66 | | 24 | 0.57 |
| | 15 | 1.60 | | 31 | 0.49 |
| | Total | 4.26 | | | |
| 29SJ625 | I | Est. 4.37 | | ? | 0.42 |
| | H | Est. 3.07 | | ? | 0.47 |
| | Total | 7.44 m ² | 1.30 | | |
| 29SJ627 (1) | 22 | 3.66 | | 55 | 0.52 |
| | 19 | 3.23 | | 42+ | 0.73 |
| | Total | 6.89 m ² | 0.43 | | |
| (2) | 16 | 4.06 | | 60 | 0.52 |
| | 4 | 3.88 | | 65 | 0.81 |
| | Total | 7.94 m ² | 0.18 | | |
| (3) | 9 | 3.53 (single rm. suite) | | 65 | 0.72 |
| | | | | | |
| | | | | | |
| 29SJ724 (1) | 3 | 4.32 | | 50 | 0.49 |
| | 2 | 2.17 | | 83 | 0.56 |
| | Total | 6.49 m ² | 1.15 | | |
| (2) | 7 | 2.65 | | 63 | 0.41 |
| | 8 | 1.53 | | 70 | 0.58 |
| | Total | 4.18 m ² | 1.12 | | |
| (It is not known whether Rms. 4, 5, and 6 at 29SJ724 are all part of the same room suite or not. Rooms 4 and 5 (4.77 and 4.28 m ² respectively) seem to be large rooms while Room 6 consists of only 2.09 m ² below the bench. Possibly rooms 5 and 6 form a suite and 4 is a single unit like Room 9 at 29SJ627.) | | | | | |
| 29SJ1360 | 3 | 3.03 | | 34 | 0.60 |
| | 2 | 2.73 | | 91 | 0.65 |
| | Total | 5.76 m ² | 0.30 | | |
| 29SJ1659 (Shabik'eshchee) | 13 | 1.92 | | 46 | 0.40 |
| | 14 | 1.28 | (see text) | 51 | 0.47 |
| | without Bin 15 | 1.48 | | 46 | 0.80 |
| | Total | 4.68 m ² | | | |

(Where the extent or association of storage rooms and/or ramadas are, for any reason, unclear [i.e., 29SJ629], suites are not included above.)

Lekson notes a width to length ratio of 0.5 in rear rooms associated with towns from the 900s through 940s, indicative of a similar elongate configuration, although large site rooms are rectangular with masonry walls (1984:62).

Comments. Storage facilities were dug as individual units rather than formed by the subdivision of a continuous curvilinear trench as has been observed at sites in the Mesa Verde area (Hayes 1975:51, Figure 38; O'Bryan 1950:37, Figures 13, 20). In the examples referenced above, there are additional differences in spatial organization in which storage and living rooms are found next to one another within the same row. Although the room organization of this period at Mesa Verde does not consistently differ with that at Chaco (House 3 at Site 1676 is similar to several excavated sites in the canyon), there seem to be consistent differences in construction techniques. Even ramada areas at House 3 at Site 1676 (Hayes and Lancaster 1975:16-22) were excavated below the ground surface level to the same depth as the associated storage room floors, the entire area having been subsequently divided by partitioning. In Chaco, there is a consistent pattern not only of individual storage cist excavation (Figure 2.11) but of continued use of deeper storage room floors in contrast to the ground level surfaces of adjacent work areas.

Wall construction and features. Whether or not storage rooms contain lateral shelves (benches), their floors are generally recessed a short distance below the ground surface. Within our excavated sample, this lower portion is generally lined with large slabs of sandstone set upright and covered with adobe or gray clay plaster. As in storage cists of the previous period, upright slab bases were generally set against the native soil prior to the laying of the floor surface.

Only two storage rooms (29SJ 724) have walls that are comprised of plastered native soil, with no signs of ever having been slab lined. Interestingly, the late 700s and 800s cists at Site 29SJ 299 are slab-lined and plastered, whereas the 600s examples associated with a different portion of the same site are neither slab- nor plaster-lined.

The portions of the upper walls (above the lateral shelves and above the subterranean portions of the storage room) remain in only a few cases (possibly 29SJ 724 and 29SJ 627). In several sites such as 29SJ 627, it appears as if the upper walls were substantially modified in subsequent construction episodes. Turtlebacks or hand-formed blocks of adobe with convex upper surfaces and concave lower surfaces comprise the cores of the remaining upper wall sections. These turtlebacks were laid with adobe plaster and horizontally chinked with small sandstone pieces generally not exceeding 7 cm in length (Figures 2.12a and 2.12b). The entire surface was then plastered with adobe. The chinking may have assisted in bending the exterior wall plaster. This construction form approximates Brew's Type I construction (1946:191-192), as described in contemporaneous building at Site 13 on Alkali Ridge.

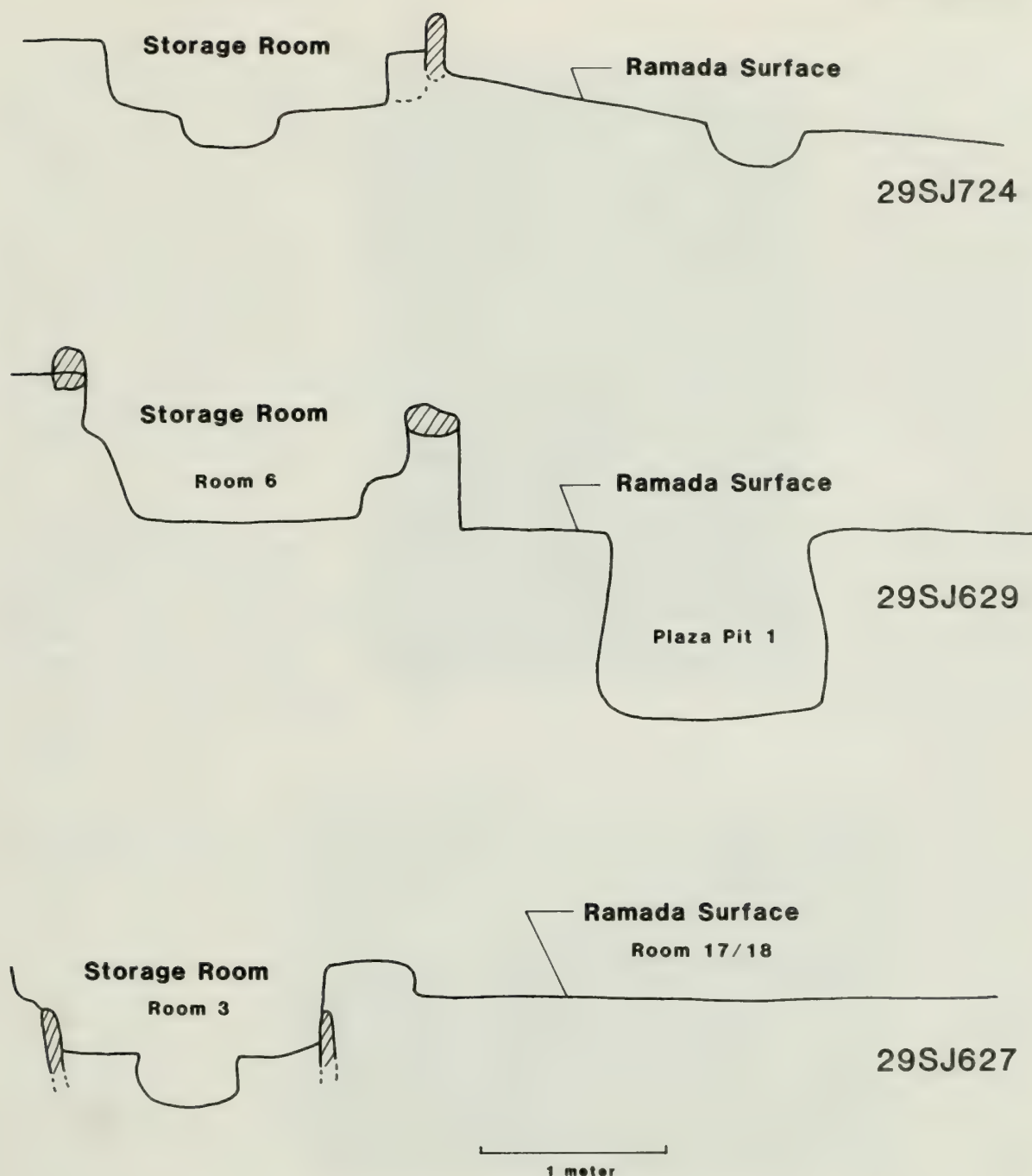


Figure 2.11. Cross sections through several late 700s-early to middle 900s roomblocks.

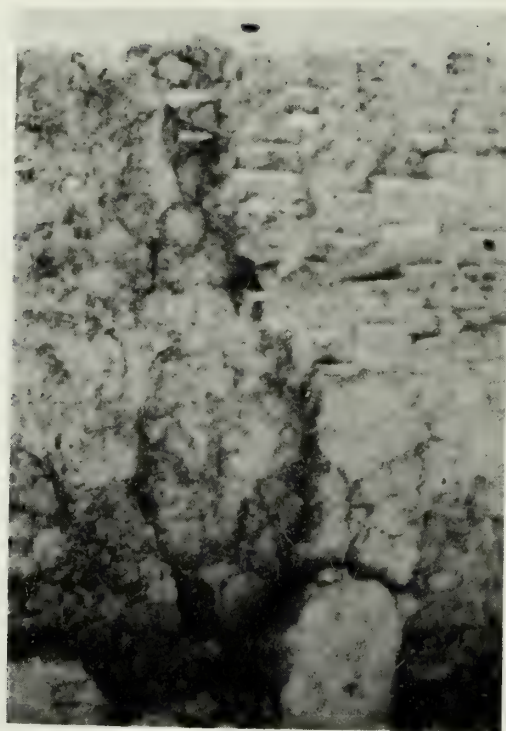


Figure 2.12. Cross section of a 700s-900s wall. (a) Wall section;
(b) Detail of turtleback.

One wall niche was found in the lower portion of the south wall of Room 4 at Site 29SJ 627. At first it was thought this may have been a passage, but it is now considered to be a severely rodent-disturbed wall niche (Powers, personal communication 1977). An additional niche was present in an adjacent ramada. It is possible other niches existed, but if (now non-existent) upper wall construction was of plastered turtlebacks or of pitched wood, storage niches would not have been likely. The frequency of wall niches in late 700s pit structures increased over the previous period, possibly attributable to a reduction in floor area between these two periods. It does not appear as if the same increase in niche frequency is to be found in storage facilities, nor are wall niches commonly found within these rooms. The suggestion is that an increased need for food storage space was accommodated by additional floor area rather than niches or lateral shelving.

Doors and steps. At sites 29SJ 627 and 29SJ 724, four or possibly five storage rooms had lateral entries, as indicated by stone steps (Table A.2). Large sandstone slabs, possibly broken metates, were set upright into the floor surface near storage room walls adjacent to associated ramadas. These slabs facilitated access between the sunken floors and the adjacent ramada surfaces, which were generally at existing ground surface level. The only doors encountered faced the plaza/work areas. No direct access from one storage room to another either within or between suites was noted.

Lateral shelves. For lack of a better term, the steps or indentations in the walls of these storage rooms have been designated benches or shelves. These features frequently result from the construction of a relatively narrow wall upon a wider prepared area. The walls are thus recessed from the actual edge of the subterranean portion of these storage features, creating an encircling "shelf." These shelves or benches were present in 17 of 28 (52%) of the excavated storage rooms from this period. Only a few benches retained the plaster, which, at least in some cases, originally finished the tops and the slab-lined facing, similar to that on the benches in pit structures. The only difference between storage room and pit structure benches involves the separate construction of the upper storage room walls in the former, rather than the continuous construction of the latter. However, the ultimate configuration in cross section is similar. Bench width ranges from 0 to 36 cm. The upper surfaces of benches that have been plastered were located from 30 to 60 cm above the floors.

Roof construction. Superstructures are largely inferred. Postholes, each of which was in a different configuration, were only found in three cases. One of these cases in which a pitched roof structure was suggested (Floor 3 of Room 16 at 29SJ 627) contained a room with an unusually well-made adobe-collared hearth.

The association of lateral shelves or benches with some remains of turtleback walls suggests that a number of these structures were originally

flat roofed, a conclusion supported by the lack of floor postholes in most cases.

Floors and floor features. No flagstone floors were found within storage rooms of this period, even at sites such as Shabik'eshchee Village, where these had been relatively common in the preceding period. Floors are generally comprised of native soil that either remained unplastered or was coated with a thick layer(s) of gray shale-derived clay or brown adobe (a mixture of soils generally available on-site).

Table A.2 lists the occurrences of floor features within storage units associated with this period. No such features were encountered at the Three-C site or Shabik'eshchee Village and may have been overlooked during excavation, although few were found in more recently excavated storage rooms from this period.

Subfloor cists, variable in size and shape, though lacking the typical bell-shaped cross section, are represented in restricted numbers, but nonetheless comprise the majority of the features encountered. These cists were concentrated at sites 29SJ 627 and 29SJ 724, which contain most of the better preserved room floors of the excavated sample.

Firepits in storage rooms. Firepits on superimposed floors were encountered in what has been identified as a storage room (16), in the west row of storage rooms at 29SJ 627. While both features evidence only slight burning, the one on the lower floor has an adobe collar that implies a fair amount of work investment. There is some question as to whether this or the overlying floor should be considered a storage or work area.

A similar situation arose when one of the rooms in this row of storage rooms was found to have been reused as a grinding room. With the exception of the firepits found in Room 16 at 29SJ 627, the burned pits encountered in storage rooms differ from those found in living/work areas in the amount of preparation generally invested in their construction. The burned pits in the storage rooms differ in that they are generally scooped out small pits that lack clay or stone lining and evidence only slight burning. It has been suggested that these may have accommodated already heated materials, such as wood coals, or rocks, that served to dry out these rooms or warm the people working there. The slight amount of burning exhibited by these pits is similar to that of heating pits found in the pit structures of this period.

Summary. Storage rooms of this period are joined in arcuate rows to the west or north of the open-sided work areas and pit structures. The presence of stone steps adjacent to a few plaza-facing walls indicates that lateral access was possible at least in a few cases. Room floor area increases over the previous period by slightly less than one half square meter; however, this disregards the additional area that may have been provided by the lateral shelves interior to the turtleback walls, that ap-

peared at this time. Although these rooms continue to possess few floor features, irregular unlined storage cists are occasionally present, but only one wall niche has been noted. It is doubtful that many wall features, other than those found at the base of the walls, are present due to the fragile construction that appears to have been used for upper wall building.

Although storage rooms associated with identifiable suites generally occur in groups of two, units of one and three are also found. Only one group of four storage rooms was encountered, and it appears as if one of the rooms was a later addition to an original group of three. Differential architectural characteristics among storage rooms associated with single-room suites may reflect differential use of such storage rooms. Difference in shape, roughly quantified and contrasted on the basis of width/length ratios, was noted quite consistently within the initially constructed units at one site (29SJ 627). From our excavated sample it is unclear whether there is any consistent within-site arrangement of storage room floor features associated with particular architectural characteristics, such as size and shape. Although there does not appear to be any pattern in feature distribution within sites, we have limited reliable data on which to base this conclusion.

Ramadas

Form and construction. Table 2.32 provides a brief summary of some of the architectural attributes of excavated ramadas from this period. Since few features were encountered outside of these roofed ramadas, the actual use of plaza areas external to these shelters remains unknown. The open-plaza space is not included in the work area floor estimations. The extent of the ramada, where low lateral walls are absent, is estimated from posthole positions.

In bounded ramadas, wall and doorway positions are the primary indicators of association with specific storage rooms. Doorway location is primarily determined from the presence of steps in storage rooms. Frequently one long ramada area is associated with two storage rooms of the same overall length. This is the most typical configuration encountered in our excavated sample of small sites in Chaco up until the middle 1000s, and has been referred to as a room suite or paired unit. A few examples of the one storage room to one ramada (one excavated example) and three storage rooms to one ramada (one to two examples) patterns have been found (Table 2.31). In unbounded ramadas, the determination of the association of the unbounded ramada with a specific suite, or its direct connection with particular storage rooms, relies largely on adjacency and specific site factors (e.g., stratigraphic conditions and constructional attributes).

These work areas, although of the same length as the overall storage area associated with a suite or with the site as a whole, are almost always wider than storage rooms. In only one case (Bc 50, Substructure #7) does the ramada area appear to have been smaller than the associated storage

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Table 2.32. Ramadas: Late 700s-middle 900s.

| <u>Provenience</u> | <u>Length (m)</u> | <u>Width (m)</u> | <u>Floor Area (m²)</u> | <u>Bounded or Unbounded</u> | <u>Features</u> |
|---|-------------------|------------------|-----------------------------------|-----------------------------|--|
| 29SJ299 | 10.00 | 2.4 | Est. 24.00 | Unbound | None, 11 postholes |
| 29SJ625 | ? | ? | Est. 19.73 | ? | Fpts., ashpit, 6+ postholes |
| (incomplete list of features) | | | | | |
| 29SJ627(1) Rooms 10/12/14/15 | Est. 5.9-6.0 | 3.4-3.5 | Est. 20-21 | Bounded | 2 fpts., 1 storage cist, 1 walled bin, 5 other pits, 4 phs. |
| 29SJ627(2) Rooms 8/3 | 5.57 | 3.53 | 19.66 | Bounded | 5 heating pits, 1 storage pit, 5 other pits, 11-12 postholes |
| 29SJ627(3) Room 5 | 3.42 | 3.30-3.40 | 11.30-11.63 | Bounded | 1 firepit, 2 heating pits, 3 other pits, 14 postholes |
| 29SJ629 | | | Est. 17.23 | Unbounded | (ADD FEATS) |
| 29SJ724 Room 1 | 5.00 | 2.74 | 12.30 | Bounded | 1 firepit, 12+ postholes |
| 29SJ724 Room 9 | 4.30 | 1.90 | Est. 8.17 | Bounded | 1 hearth (collar), 3 storage bins, 1 subfloor pit, 8+? postholes |
| 29SJ724 "Ramada" | 7.30 | 2.50 | Est. 18.30 | Unbounded | 1 hearth(over R.10) 1 firepit 14 postholes |
| 29SJ1360 Room 4 (may have had earlier floor) | Est. 4.90 | 1.80 | Est. 8.74 | Bounded | 1 heating pit frag. (mostly removed), 1 bell-shaped pit |
| 29SJ1659 (Shabik) House C Complex | 5.79 | 2.74 | Est. 15.62 (planimeter) | Bounded | 2 hearths, no postholes |
| Bc 51 Substructure (not used--these may be remodels of 700s-900s surfaces?) | | | | | |
| SE of Sub. 7 | Est. 3.61 | Est. 3.05 | Est. 11.01 | Unbounded | 1 firepit 1 heating pit? bin in wall 8 phs |
| SE of Sub. 4 | Est. 6.40 | (partial) | ? | Bounded | 1 firepit 6 phs (all in NE) |

room, but it is not known whether the entire ramada was excavated. Generally the proportional ratio was roughly 1 m² of storage room floor area to between 1.7 (Site 29SJ 724) and 3.4 m² (Site 29SJ 627) of ramada area.

The ramadas characterized above are invariably located along the plaza-facing side of the sites and are more common in this period than any other. Although there are excavated examples of ramada areas at both ends of the room rows (often at the north and south ends), no postholes were encountered in these areas (with the exception of Site 29SJ 629) (Windes 1978b:48-49; McKenna, personal communication 1981).

No activity areas involving identifiable surfaces associated with fixed features (such as hearths) were encountered on the opposite side of the storage room row from the plaza (often west) in sites of this time period. A single site, 29SJ 627, evidences a partial second row of living rooms, east of the first row (Figure A.90).

Partial walls and roofs. It is suspected that these ramadas were covered with light roofs, but no evidence of these has been recovered. It is further suggested that the slab or adobe walls that enclosed these areas in some cases were low or partial constructions. The consistent presence of moderately sized (mean diameter=21.97 cm, sd=7.33, cv=33.34%, n=115) postholes, most often in two parallel lines (although not always regularly spaced), indicates that upright beams supported the roof regardless of the presence of peripheral enclosures. The actual size of the beams that had been seated within these holes is not generally apparent, although in several cases in-place sandstone shims indicate that the post sizes were probably much less than the mean hole diameter. At Site 29SJ 629 in Room 3, a work area dating to this period, a posthole having a diameter of between 30 and 34 cm retains the mold of an 8.5 cm-diameter post. Within the fill of the same room, post impressions indicate that the maximum diameter of roof beams was 9 cm (Windes 1978b:38). This beam size, whether representative of ramada area roof members or not, is similar to that of many timbers found among pit structure roof fragments.

A single ramada area at Shabik'eshchee Village lacks postholes, although the existence of a ramada or bounded work area is evidenced by the remains of an upright slab enclosing wall and a series of features. Roberts (1929:73) comments on the lack of postholes associated with the House C Complex (Figure A.93), and indicates that a careful search had been made for these features, but none was revealed. The slab enclosure in the House C Complex is insubstantial, and little is known about its original form although presumably it comprised the base of adobe (turtleback?) walls.

Spacing between postholes, despite their relatively consistent occurrence in two parallel rows, is extremely variable. The above determination of interval is observable at sites that evidence little subsequent remodeling and readjustment. It may be that due to the local scarcity of lumber, posts used for ramada roofs may have been gathered prior to construction,

and the interval between roof uprights may have been determined on the basis of the dimensions of the timber collected.

There is little indication of how much weight these ramada roofs could have actually supported. Lateral access to storage rooms from ramadas is only occasionally apparent, and evidence for the use of roof tops to gain access to storage areas is inconclusive. It seems likely that ramada roofs were used for drying materials; if so, it would have been necessary for them to support the weight of at least one person.

The adobe walls found enclosing ramada areas at 29SJ 627 are very narrow, the bases ranging between 10 and 17 cm in width along the sides not shared with storage rooms (Truell 1980:III-5). It may be that some erosion has occurred, but these dimensions, if even approximately accurate, are considerably narrower than the masonry load-bearing walls of these rooms in later construction, where postholes are lacking and the mean wall thickness is 25 - 27 cm.

Rooms 1 and 9 at Site 29SJ 724 represent the only cases in which ramada surfaces are lower than the surrounding ground surface. There has been some objection to the inclusion of these areas with other bounded ramadas of this period, although the disagreement is possibly with the inclusion of the unbounded ramada present at the northern end of the 29SJ 724 aboveground room group. Whether bounded or unbounded, all possess postholes and similar floor feature representations (Table 2.32). Windes (the excavator) concedes that both the unbounded ramada and rooms 1 and 9 at this site functioned as work areas. The presence of postholes in all cases indicates that the roofs were supported by upright members rather than side walls. The height of the side walls of the two slightly subterranean work areas (rooms 1 and 9) is unknown. All that remain are upright slabs imbedded in the tops of the subterranean walls and portions of the overlying adobe construction (Windes 1976c:20, 33, 37; McKenna, personal communication 1980). The slightly subsurface construction of these floors, perhaps a response to the positioning of these rooms on the edge of a ridge top that slopes to the north, may have been necessary in order to construct a relatively level surface. This slight entrenchment of the work areas is also noted in the Mesa Verde area, although these excavations are seldom as deeply subterranean as those encountered in storage rooms either in Chaco or other parts of the San Juan area.

Floors. Floors in ramada areas are generally at the same level as and continuous with the adjacent plaza surfaces, even if the ramadas are separated by low walls. Prehistorically, ramada floors were probably modified slightly in order to form more uniform work surfaces. If not bounded, both ramadas and plazas may have been sloped, leveled, or otherwise altered to drain properly. In general, ramadas do not appear to have been excavated appreciably below the original surrounding ground level. As with storage rooms of this period, floor surface treatment seems to have been a matter of individual preference. Surface finishes (tan adobe, gray stiff clay, or no finish whatsoever) are relatively consistent among suites within a single site, but vary among sites irrespective of their proximity to each

other. For instance, differences in ramada surfacing as well as storage room floor construction were noted among sites roughly 150 m apart in Marcia's Rincon.

At Site 29SJ 627, the 1- to 1.5-cm gray clay floor plaster layers, with a yellowish cast to them, characteristically have thin dark gray skin-like surfaces. In cross section, these appear to be single deposits that were darkened on the surface by exposure and use; however, the actual conditions of their natural or cultural deposition remain unclear. This finishing material may be derived from on-site soil, from reworked deposits in the canyon washes (Love 1980), or from eroding clay deposits along the southern slopes of Chaco. Floor surfaces are not the same consistency as the underlying brown to tan sandy clay. Floor material was probably prepared and laid down in these areas rather than simply being the result of soaking a leveled existing surface. Gillespie (personal communication 1980) noted the same types of floor surfaces in rooms 103 and 110 at Pueblo Alto, although the conditions of deposition or preparation may have been different.

No plastered unbounded ramada surfaces were encountered, although features found within these areas are frequently plaster-lined. One bounded example (29SJ 724, rooms 1 and 9) retained no signs of having been plastered.

Floor features. The formalization of utilized space (by the construction of ramada roofs) between pit structures and storage rooms in the late 700s resulted in the centralization of extramural features into these sheltered areas. Very few features are encountered in the open plaza areas outside these ramadas.

Work areas are typically identified by the presence of slab- or plaster-lined hearths, evidencing at least a moderate amount of labor investment in their construction. The dangers inherent in using this feature as the principal criterion to separate living and storage areas have already been discussed. Excavated work areas in Chaco, in addition to post-holes, often include relatively small volume bell-shaped storage cists and numerous pits of unknown function. Heating pits, common in contemporaneous pit structures, are not typically encountered in these aboveground work areas, although two suites at Site 29SJ 627 do contain them.

The centralization of features beneath ramada roofs during this period is in contrast to the 500s-early 700s sites, where few external features (mostly hearths) were encountered. The earlier features are generally located adjacent to pit structures or on the east or south sides of separate storage bins where, as noted by Roberts (1929:96), they are sheltered from prevailing winds. Apparently extramural hearths were not associated with each house unit at this time. By the late 700s or early 800s, nearly every suite within a small site had at least one and possibly two firepits within its associated ramada area. Only one excavated suite (at Site 29SJ 627) lacks a firepit, and the ramada with this unit atypically contains five heating pits (Table 2.22). Although ramadas of the Pithouse E complex at Site 29SJ 299 also lack evidence of firepits, these surfaces are severely eroded, and only the postholes remain.

Comments. An increased structural formalization of plaza work areas is evident during the 800s in comparison to the previous period. This trend is indicated by the consistency of ramada location within and among sites and by the use of light roofs, the occasional presence of low boundary walls, the centralization of fixed features with these areas, and the appearance of gray clay plastered surfaces.

Middle 900s--Middle 1000s

Ceramic Associations

Toll and McKenna (1981a:6-8b; 1982) present excellent summaries of the ceramic types associated with this period. The reader is advised to consult these and other discussions presented by these authors for detailed information.

The beginning of this period is marked by the transition from a dominance of Early Red Mesa B/w to Red Mesa B/w among whitewares, associated with rapidly increasing frequencies of trachybasalt temper among graywares. Toward the end of this time frame, during the early to middle 1000s period (1020-1040s), Gallup B/w occurs with Red Mesa B/w in relatively equal proportions. The majority of the ceramic and architectural information from this period is known from a single excavated house, 29SJ 627.

The Sample

Excavated sites with roomblocks associated with this period include 29SJ 625 (Three-C site), 29SJ 627, 29SJ 629, 29SJ 750 ("Leyit Kin"), and 29SJ 1360 (houses 1 and 2). With the exception of Leyit Kin, where early occupation information is limited, all of these sites represent continuous occupation from the preceding period. Plan views of the middle 900s-middle 1000s construction episodes are shown in Figures A.95, A.96, A.97, A.98a, A.98b, A.99, A.100, and A.101. The letter subscripts identify multiple building periods or different portions of the excavation for sites 29SJ 627, 29SJ 629, and 29SJ 1360. The dating difficulties with the Three-C site (29SJ 625) have been discussed and, as noted, the physical similarities between the last form of the roomblock at Site 29SJ 625 and the last major construction of the 29SJ 627 rooms are readily apparent, as are those of the first construction of 29SJ 625 with earlier building periods at 29SJ 627 and 29SJ 629.

Portions of most of the excavated "Bc" sites near Casa Rinconada were constructed and/or occupied in this mid-900s to mid-1000s period, but little is known about roomblock extent or specific temporal placement. It

seems clear that the Bc 50 aboveground roomblock has retained most of its late 700s and early 800s form (Figure A.94, Table A.3).

A portion of Site 29SJ 626, tested in 1976, is ceramically associated with this period, but no structures were excavated (Table 2.2). The second segment of 29SJ 626, tested during the fall and winter of 1982, appears to be architecturally affiliated with the middle 1000s period, but has not been included since the report on these findings is incomplete at this writing.

Despite the small size of the excavated sample, this group generated a tremendous amount of information. Site 29SJ 627 consists of three or four households, was occupied at least intermittently for between 200 and 250 years, and provides the principal data source for our understanding of small site long-term architectural growth and change. Other sites, such as 29SJ 629 and 29SJ 1360, with less extensive periods of occupation which nevertheless overlap the use of 29SJ 627, offer additional essential comparative data. The understanding of this relatively short developmental sequence has been particularly critical since absolute dates associated with aboveground rooms are extremely scarce. The closeness of such sites as 29SJ 627, 29SJ 629, and the Three-C site (29SJ 625) and the degree of similarity among them during this and the preceding periods may suggest a significance of proximity.

Three of the five sites associated with this period closely resemble the previously established spatial organization pattern of the 700s through early 900s, although some differences in the use of rooms and the correlation of their position within the site are noted. At one site (29SJ 629), an east-west trending wing of a single row of rooms was added to the northern end of the roomblock (Figures A.98a, A.98b), a pattern apparent elsewhere in the Anasazi region at this time and earlier.

The site that deviates most notably from the rest of this sample in general spatial organization is House 1 at 29SJ 1360 (Figure A.100), while House 2 (Figure A.101), an extremely poorly preserved example at the same site, seems to resemble earlier established patterns noted in the canyon. McKenna (1985:385) suggests that House 1 may be part of a larger site, not fully excavated, representing a gap in our information that limits the analysis of the site's overall organization.

Only a small portion of the Leyit Kin substructure (Figure A.99) was dug, and its room arrangement is not known. The overlying roomblock layout represents a unique spatial arrangement among the excavated sites associated with early 1000s-middle 1000s occupation in Chaco, but whether the earlier site organization was of this same type is not known.

Tables A.4-A.8 provide dimensions for rooms built during this period, noting those that continued in use from previous construction.

Storage and Living Rooms

Form and construction. During the 900s to mid-1000s, storage and living rooms are slightly less predictably located within roomblocks than previously. Specifically, the correlation of floor feature occurrence with room position is not as consistent as in earlier times. The west or rear row of rooms is generally featureless, as were the similarly located storage bins of the 700s and 800s. This rear row continues, for the most part, to be considered storage rooms. A few rear row rooms built in the middle 900s through middle 1000s contain crude heating pits (29SJ 625, 29SJ 627), a pattern consistent with both the earlier construction patterns and the use of these as storage facilities. Additionally, one rear room (Room 19 at 29SJ 627) contains a series of mealing catchments, representing the conversion of an earlier storage room into a grinding area that is then included with the living/work areas.

Plaza-facing rooms (ramadas) have, up to this point, been considered living and work areas due to the extremely high frequency of floor features of a variety of types associated with these surfaces. Although firepits and/or a variety of pits and other floor features continue to be present in many of these areas, which have become fully walled rooms by the late 900s and early 1000s, several sites have empty rooms in these rows. Since "emptiness" is a major criterion in distinguishing storage rooms, it might be appropriate to include these empty rooms in that category. This functional/locational correlation is best examined at sites where there is some sequential pattern of room placement, an obvious and severe restriction.

A series of t-tests was run to see if a significant difference exists between the average size of rooms with features and rooms without features (or those with only large volume storage cists) at sites 29SJ 625, 29SJ 627, and 29SJ 629. Additionally, the average size of rooms with features is compared with the average size of all front and middle row rooms.

Size. A significant floor area difference ($p > .005$, d.f.=30) is noted between all rear ($n=13$) and all middle and front ($n=19$) row rooms in our sample at sites 29SJ 625, 29SJ 627, and 29SJ 629. At Site 29SJ 627 (the largest contributor to the sample), this difference is apparent ($p > .05$, d.f.=17) even when the large communal grinding room at the site (Room 17/18) is excluded. There is, however, no significant difference in size between the floor area of empty middle and front row rooms and that of those possessing features, although the sample of the former ($n=6$) is too small to allow this comparison.

The indication is that rear rooms at these sites were built smaller than front or middle row rooms, but this does not necessarily suggest a functional separation associated with row location. Most features at these three sites are located within plaza-facing rooms, as in previous periods, and are undoubtedly living rooms. Empty rooms in middle or front row rooms may still, despite their similarity in size to living rooms, have been used

for storage, or represent rooms built for living/work areas but never developed as such. One of these rooms contained a burial, which might explain the early closure of the room after construction. In the northernmost suite at 29SJ 627, when one rear room was converted into a meal room, a middle row room may have replaced it as a storage facility (Figure A.97). It is difficult to be sure whether a similar change may have occurred within the southern room suite at the site since the upper floors in two of the rear rooms associated with this period were removed prehistorically.

Despite the apparent lack of functional distinction related to position noted at 29SJ 1360, rooms designated living rooms ($n=3$) have larger floor areas than storage rooms ($n=2$) at the same site. This distinction appears to have been maintained from the middle 700s through middle 1000s construction, although the sample is very small ($n=8$).

Room dimensions from building episodes of this period, listed in Tables A.4-A.8, are summarized in Tables 2.33 and 2.34.

In the following discussion, middle and front row rooms with features are included with living rooms at sites where actual rows do not occur (29SJ 1360 and the north wing of 29SJ 629). Similarly, both empty rear row rooms and those containing storage cists are included with storage. For the moment, rooms with features and empty living rooms are not tabulated. The three rear rooms containing crude heating pits at two sites are included with storage rooms for reasons outlined above.

Living rooms are generally larger in size than storage and other rear rooms, despite a size overlap between them. A greater size range is apparent in living rooms (varying from about 3.8 m^2 to 14.3 m^2 during this period), whereas storage rooms maintain a smaller size variation (2.3 m^2 to 7.6 m^2) with only one room exceeding 7.0 m^2 . This greater size variability among living rooms may be related to the wider range of activities occurring in them.

The late 900s segment is distinguished ceramically from the 1020s through 1040s or 1050s. The principal small site architectural representative of this later period is the third construction episode at Site 29SJ 627, although the Three-C site may also contain a component from this time period. It is unfortunate that formal living/work areas from these two time segments at Site 29SJ 627 cannot be easily compared (the extent and segmentation of the earlier period [A.D. 975-1000] are not well understood). The four rooms that are associated with 1020s-1040s construction at the site are distinct from the rest of the earlier storage rooms at 29SJ 627, and from the sample as a whole (Table 2.33). Despite the small sample size, an increase of over 1 m^2 in mean storage room floor area is apparent between these two construction periods at this site. As Table 2.35 indicates, this floor area increase is apparent at Site 29SJ 627; furthermore, examples from this time segment as a whole reflect a similar increase over earlier periods.

Table 2.33. Summary of rear and storage room dimensions.

| | <u>Length(m)</u> | <u>Width(m)</u> | <u>W/L Ratio</u> | <u>Floor Area (m²)</u> |
|--|------------------|-----------------|------------------|-----------------------------------|
| <u>Middle-Late 900s to 1000 (29SJ627 second construction episode only)^a</u> | | | | |
| n = | 6 | 6 | 6 | 6 |
| mean = | 2.46 | 1.92 | 0.79 | 4.36 |
| sd = | 0.32 | 0.21 | 0.12 | 0.51 |
| cv = | 13.01% | 10.94% | 15.19% | 11.70% |
| <u>Middle-Late 900s to 1000 (All rear and storage)^b</u> | | | | |
| n = | 11 | 11 | 11 | 11 |
| mean = | 2.74 | 1.91 | 0.72 | 4.95 |
| sd = | 0.65 | 0.28 | 0.15 | 1.52 |
| cv = | 23.72 | 14.66 | 20.83% | 30.71% |
| <u>1020s-1040s (29SJ627 third construction episode additions only)</u> | | | | |
| n = | 4 | 4 | 4 | 4 |
| mean = | 2.59 | 2.08 | 0.81 | 5.53 |
| sd = | 0.21 | 0.15 | 0.11 | 0.36 |
| cv = | 8.11% | 7.21% | 12.11% | 6.51% |
| <u>Whole Period^c</u> | | | | |
| n = | 15 | 15 | 15 | 15 |
| mean = | 2.70 | 1.95 | 0.75 | 5.10 |
| sd = | 0.56 | 0.26 | 0.15 | 1.32 |
| cv = | 20.74% | 13.33% | 20.00% | 25.88% |

^a Room 19 (rear room with grinding bins) at 29SJ627 included.

^b Without Room 19, 29SJ627.

^c Three-C Site construction included in this period may be actually early to middle 1000s construction. (29SJ625-Rooms F,G; 29SJ627-2nd & 3rd building periods without Room 19; 29SJ629-Rooms 2,8; 29SJ1360, House 1-Rooms 1,9).

Note: Included in these calculations are only rooms thought to have been constructed during this period. Others remaining in use from previous construction periods are not included).

Table 2.34. Summary of living room dimensions.

| | | <u>Length(m)</u> | <u>Width(m)</u> | <u>W/L Ratio</u> | <u>Floor Area(m²)</u> |
|--|---|------------------|-----------------|------------------|----------------------------------|
| <u>Middle 900s-middle 1000s (all)</u> | | | | | |
| n | = | 15 ^a | 15 | 15 | 15 |
| mean | = | 2.92 | 2.22 | 0.81 | 6.62 |
| sd | = | 0.36 | 0.52 | 0.13 | 1.35 |
| cv | = | 12.33% | 23.42% | 16.05% | 20.39% |
| n | = | 17 ^b | 17 | 17 | 17 |
| mean | = | 2.99 | 2.17 | 0.77 | 6.92 |
| sd | = | 1.38 | 0.50 | 0.18 | 2.36 |
| cv | = | 46.15% | 23.04% | 23.38% | 34.10% |
| <u>1020s-1040s/1050s (29SJ627 third construction period)</u> | | | | | |
| n | = | 8 ^c | 8 | 8 | 8 |
| mean | = | 2.87 | 2.32 | 0.81 | 5.61 |
| sd | = | 0.25 | 0.35 | 0.13 | 2.60 |
| cv | = | 8.71% | 15.09% | 16.05% | 0.46 |
| n | = | 9 ^d | 9 | 9 | 9 |
| mean | = | 3.40 | 2.27 | 0.75 | 6.58 |
| sd | = | 1.60 | 0.37 | 0.22 | 3.78 |
| cv | = | 47.06% | 16.30% | 29.33% | 57.45% |

^a "Empty" middle and front row rooms not included, and rooms 19 and 17/18 at 29SJ627 also omitted.

^b With Room 19, at 29SJ627 and Room 17/18 (long communal grinding room) also at 29SJ627.

^c Without Room 17/18 at 29SJ627.

^d With Room 17/18.

Table 2.35. Summary of storage room floor area.

| <u>Period</u> | <u>n</u> | <u>Floor Area(m²)</u> | <u>sd</u> | <u>cv</u> | <u>W/L Ratio</u> |
|--|----------|--------------------------------------|-----------|-----------|------------------------------|
| 500s-early 700s | 46 | 2.56 | 1.18 | 46.08% | 0.86 (sd=0.098 cv=11.4%) |
| Mid 700s-early 900s | 27 | 2.94 | 1.38 | 46.94% | 0.61 (sd=0.13 cv=21.31%) |
| Mid 900s-mid 1000s | 15 | 5.10 | 1.32 | 25.88% | 0.75 (sd=0.15 cv=20.00%) |
| <u>Aboveground living room floor areas (m²)</u> | | | | | |
| Late 700s-middle 900s Ramadas (Bounded) | 10 | 15.62 | 5.39 | 34.51% | |
| Late 700s-mid 900s-- | 9 | 5.80 | 3.28 | 56.55% | (with 29SJ627) |
| (single living room floor area estimate) | 6 | 5.04 | 0.92 | 18.25% | (without 29SJ627) |
| Late 900s-middle 1000s | 17 | 6.92 | 2.36 | 34.10% | |
| <u>29SJ627: Storage room floor area comparison between major construction episodes</u> | | | | | |
| Late 700s-early 800s 1st Building 29SJ627 | 5 | 3.67 | 0.32 | 8.72% | |
| 950-1000 - 2nd Building at 29SJ627 | 6 | 4.36 | 0.51 | 11.70% | 0.79 (sd=0.12, cv=11.70%) |
| 1020s-1040s - 3rd Building at 29SJ627 | 4 | 5.53 | 0.36 | 6.51% | 0.81 (sd=0.11 cv=12.11%) |

The increase in storage room floor area through time that is particularly pronounced during this period is mirrored by a comparable increase in living/work areas associated with room suites. This decrease of above-ground suites may not necessarily imply simultaneous increases in food surpluses, however.

Interestingly, Toll and McKenna (1981a:31, 37, 122) note a significant increase in orifice diameter from neckbanded grayware (700s through late 900s) to Pueblo II corrugated (emerging early 1000s). The larger orifice dimension seems to correlate fairly well with an overall increase in jar size (Toll and McKenna 1981a:Figure 12), an increase that seems to correspond temporally to the slightly greater floor area noted in storage rooms.

Lekson (1982a), despite the absence of a good comparative sample of town room sizes from this period, notes that mean rear room size from A.D. 900 through 940 is 10.7 m^2 , decreasing to 9.8 m^2 between the 1020s and 1050s. Lekson's data do not indicate a continuous decrease in storage room floor area subsequent to this period.

Living rooms built during this period are generally completely enclosed by walls. Some ramada areas, such as those at sites 29SJ 1360 and 29SJ 629, continued in use. Suite relationships among the fully enclosed rooms are known principally from the placement of doorways. Although a suite may have roughly the same area as previously, the continuous ramada surface of the late 700s and 800s has been subdivided. In 700s-early 900s construction, two storage rooms, for instance, are most often associated with a single ramada surface of equivalent length. Subsequently, with the enclosure of ramadas into living rooms, two storage rooms are frequently associated with two adjacent living rooms connected to one another. Although the space within a suite was not greatly altered, the storage to living room ratio was. At late 900s - middle 1000s sites, living rooms are both slightly longer and wider than storage areas (Tables 2.33, 2.34), and a single living room generally fronts a single storage room.

To facilitate a rough basis of comparison between aboveground living/work space of this period and that of the previous ramada surfaces, the early ramada floor areas are divided into segments based on the number of associated storage rooms. In other words, if a ramada associated with three storage rooms is 12 m^2 , it is assumed that it is the equivalent of three 4 m^2 living rooms. If one accepts the obvious underlying conjecture, it may still suggest that the apparent increase in aboveground living room floor area in the late 900s and early 1000s is a realistic one.

Shape. Tables A.4-A.8 present width/length ratios of rooms by individual site. The overall mean for storage rooms of this period (Table 2.34) indicates a tendency toward slightly less elongate storage rooms than was noted in the previous period. The nearly equivalent width and length dimensions of the 500s through early 700s storage bins do not reappear (Table 2.35). Dimensions of living rooms of this period (Table 2.34) follows a similar proportional ratio.

One aspect not apparent from width/length ratios is the effect of the use of flat-laid masonry on room configuration during this period. With the substitution of masonry for adobe turtlebacks, which permitted more regular corners, storage rooms became more nearly square. Plaster continued to be liberally applied to the walls and corners of room interiors, giving them an oval configuration in plan view.

Wall construction and features. Some horizontally-laid masonry is present in small site construction from the 500s or 600s, but in all known cases, this construction forms partial walls in remodeled or otherwise disturbed areas where additional reinforcement was deemed necessary. The first widespread appearance of fully masonry-walled aboveground rooms occurs in the late 900s or early 1000s, but does not appear in pit structures at those same small sites until the late 1000s. This is in contrast to towns within Chaco and to other areas within the Anasazi region where masonry in rooms and pit structures is present in the early 900s.

Aboveground room masonry in late 900s walls contains a high variability in block size and amount of mortar used both within and among sites (McKenna 1983:50; Truell 1980:Section IV). The irregularity of only slightly flaked or unmodified sandstone blocks suggests stone was being gathered from easily obtainable materials on the nearby talus slopes rather than being systematically quarried.

At sites 29SJ 629 and 29SJ 1360, Windes (personal communication 1980) and McKenna (1983:50) report adobe footings of roughly 15 and 20 cm beneath flat-laid masonry walls in rooms of this period (Figures 2.13a and 2.13b). The first entire room foundations recorded in small sites are of this period (McKenna 1983; Windes, personal communication 1980). According to McKenna (personal communication 1981) there is no apparent need, suggested by the environment, for such footings, although their presence is almost ubiquitous at 29SJ 1360. These foundations generally are the same thickness as the walls that they support.

At Site 29SJ 1360, walls range from 18 to 50 cm in thickness, with an average of 43 cm (McKenna 1983:50). At Site 29SJ 627, where no wall foundations are present and a similar wall thickness range (ca. 16 to 60 cm) is noted, a consistently thinner wall (between 22 and 33 cm) is encountered. It is not clear whether the existence of foundations affects wall thickness or whether this is just a construction technique unique to each site.

Both simple and compound walls are present. In either type, small spalls and, infrequently, sherds were used as chinks, set into the adobe between stone courses, and often incorporated liberally around door frames or in repaired areas. A number of walls constructed at this time appear to be a mixture of simple and compound masonry courses. Single large, flat stones extend through the entire wall thickness in some areas, whereas widths in other portions of the same walls are spanned by two smaller stones.



Figure 2.13. Adobe foundations beneath walls constructed in the late 900s-middle 1000s. (a) 29SJ 629, Room 8 (storage), west wall foundation; (b) 29SJ 1360, House 1, Room 4 (living room), north wall adobe foundation.

Block modification by flaking is occasionally apparent; grinding and pecking are rare and are generally not for construction purposes.

It is undoubtedly true that there are examples of Judd's Type I masonry (Judd 1964:Plates 10, 45) in small site walls of this period, although the extremely thick-cored walls typical of second-story construction in the early 900s portion of Pueblo Bonito are not present. To my knowledge, no cored walls occur in small site walls of this period. There is a wide range of variability in small site wall masonry construction (e.g., wall thickness, stone to mortar ratio, large and small stones employed), some of which is extremely neatly laid up and clearly does not represent a first attempt at such construction. Judd's Type I occurs in Bonitian houses roughly 75 years before it is used in aboveground rooms at small sites, despite its much earlier application for prehistoric repair and stabilization in these small site rooms.

Figures 2.14a-2.14e illustrate late 900s-middle 1000s masonry. It is impossible to ascertain (at Site 29SJ 627) which wall segments date to the beginning and end of this period, although a southern group of rooms evidences upright slabs directly beneath the flat-laid masonry of some walls. This slab construction appears immediately to precede the overlying material, indicating that the use of these upright slabs may have continued into the middle or even late 900s (Figure 2.14e).

Although no wall murals have been recorded, Kluckhohn (1939:32) notes red pigment adhering to the plaster in the Room 16 substructure at Bc 51, a room that may be associated with the late 900s.

No wall niches are found in any aboveground rooms associated with this period. The lateral shelves (benches) associated with storage room construction of the previous period are not found in the new building of the late 900s.

Doors and steps. Doorways have been encountered connecting living rooms with storage rooms, with other living rooms, and with open plaza areas. No storage to storage room lateral accesses have been found. In some sites (e.g., 29SJ 1360), too little wall height remains to distinguish doorways, and therefore household units can only be surmised on the basis of proximity and feature distribution.

A few upright sandstone slabs and blocks, occasionally metate fragments, were found imbedded in floor surfaces immediately adjacent to doorways, providing steps. Doorsills have been located up to 50 cm above the deeper floor surfaces of rear row storage rooms.

Since the adobe walls of storage rooms of the preceding period are often not preserved above low stems, it is not known whether the patterns of lateral access changed with the use of masonry. Few specifics, particularly regarding roof strength (beam size), are known about construction from either period.



Figure 2.14. Examples of masonry from living and storage rooms built in the late A.D. 900s-middle 1000s. (a) 29SJ 1360, Room 8, south wall; (b) 29SJ 627, Room 8 (living room), west wall.

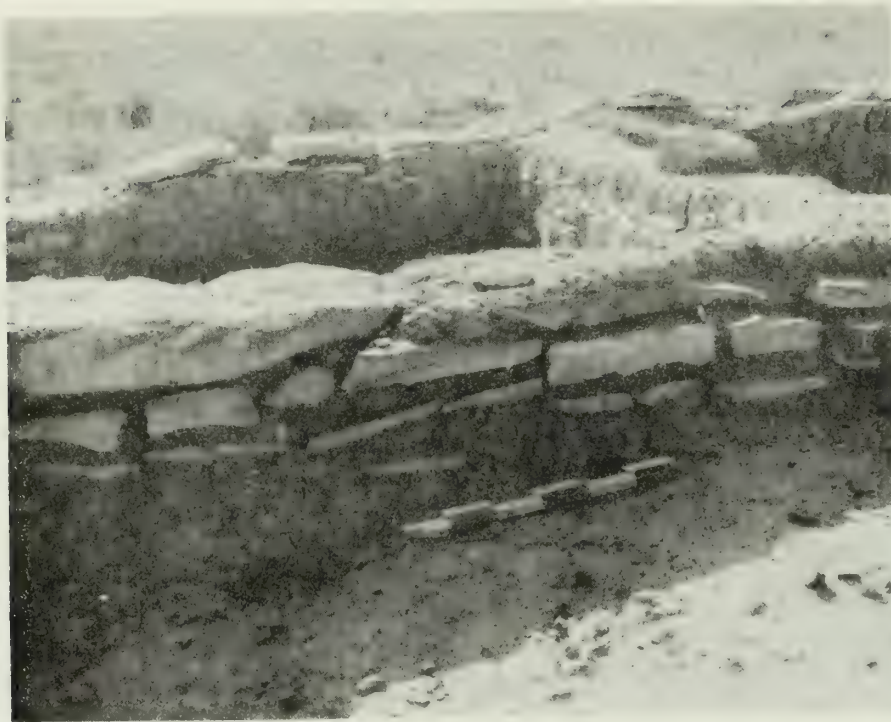


Figure 2.14 continued. (c) 29SJ 1360, Room 9 (storage), west wall exterior;
(d) 29SJ 627, Room 10, north wall.



Figure 2.14 continued. (e) 29SJ 627, Room 5, south wall.

Roof construction. No intact roof segments have been recovered from either storage or living rooms of this period; however, the absence of symmetrically placed postholes in these fully walled rooms indicates that roofs are flat and rest on wall tops.

Both adobe and masonry walled rooms (20 to 43 cm mean wall thickness) could have supported roofs stout enough to accommodate rooftop work areas. The potential use of these areas contrasts with the middle 700s-early 900s when the ramada roofs of that period could have supported only an insubstantial roof.

There are insufficient data on the size of roofing members from this period to determine whether or not the surface was used as a work area. With consistent beam reuse, the roofing adobe that probably covered these poles was stripped away prehistorically and apparently tossed into the plaza areas or into open rooms. No examination of the limited collection of beam impressions was made.

Floors. Storage room floor surfaces continue to be slightly lower (usually 20-30 cm) than adjacent living room surfaces in sites maintaining the middle 700s-early 900s spatial organization.

Storage room floors are frequently patchy, which may not be due exclusively to erosion, but possibly to less frequent renovation in comparison with living room floors. On the other hand, one site (29SJ 627) with relatively good upper wall preservation (60 to 65 cm) in the rear room group has continuous, thickly plastered surfaces.

Living room floors are consistently plastered, either with adobe made from on-site soils or with gray shale-derived clay collected directly from the Menefee Formation (Seimers, personal communication 1975) or from reworked clays from the channel margins of one of the canyon washes (Love 1980:5). Despite differential preservation and post-occupational exposure of living room surfaces, they are generally, identifiable as floors, possibly due to constant use as well as the initial application of clay or adobe flooring material. At Site 29SJ 627, both adobe and clay floors were encountered, the latter being favored during the last (third) major construction episode associated with the end of this period.

Only two examples of flagstone flooring (both from Site 29SJ 627) have been encountered in small site construction of this period. One example, a meal room (Room 19), represents a small work area and contains an anvil set into the floor surface. The second, is a portion of the plaza surface, perhaps originally enclosed, immediately east of Room 20.

Tables A.4-A.8 list floor features by site.

Storage room floors. As noted, three storage rooms contained shallow, slightly burned, plaster-lined heating pits with neither rims (Vivian Archives # 943, 944) nor slab construction. These are similar in form,

despite their plaster lining, to examples associated with 700s and 800s storage rooms at 29SJ 627 in which coals were found. The coals had apparently been heated elsewhere and brought in to heat the room while in use.

Many rooms within this category were empty; only two contained large volume storage cists. Low seed recovery from floor contact soils within storage rooms (Struever 1977:116; Toll 1981:93) may indicate that storage within containers was preferred and that floor cists or bins were not necessary. Few rooms of this or the preceding period contain subfloor cists.

One actual firepit was found in Room 2 at 29SJ 629; however, Windes (personal communication 1981) still believes that this represents storage space associated with Room 3 (Figure A.98a).

Living room floors. Tables A.4-A.8 also list living room floor features from this period. Living rooms are generally distinguished by the presence of firepits, evidencing relatively higher degrees of labor investment. Floor feature inventory is incomplete for the second construction period at Site 29SJ 627 where all of the living surfaces are directly on top of one another, often obscuring the earlier construction and associations.

Mealing rooms. Of the 20 rooms included in the living room category, five contain from two to five mealing catchments (a catchment is defined in this text as a small basin, molded into the floor placed at the open end of the metate). Additionally, there are mealing catchments associated with plaza areas in House 1 at 29SJ 1360 (McKenna 1981b:89, 90, Table 20) and at 29SJ 627 (Truell 1980:VII-18). Some catchments consist of clay-lined basins, generally with a broken slab set into the base. A few stones, frequently with carefully ground edges, are incorporated into the sides of the catchment.

No slab-lined boxes, or adobe copings enclosed the metates themselves in aboveground grinding areas, although these features are present both in contemporaneous small and large site pit structures. (The troughed metates in use at this time would not have required enclosures, regardless of provenience.) In fact it may have been advantageous in aboveground living rooms to have removable metates while adjacent catchment areas were fixed. By the late 1000s-middle 1100s, fixed mealing bins as well as catchments are present in small sites, despite continued use of troughed metates.

Mealing bins occur in groups of two, three, or five (two groups?) with only one isolated example. Not only do the first fixed mealing bins occur in rooms of the late 900s and early 1000s, the first possible communal grinding areas can also be identified. In this context, "communal" refers not just to catchment clusters but to room size and access. Two rooms at 29SJ 627 have five mealing bins each; the area of one of which is 14.3 m², almost twice the size of other living rooms at the site. This room is accessible only from the open plaza (Figure A.97), whereas the other example at the site is associated with a specific household.

Mealing bins at 29SJ 627 and 29SJ 629 constructed during this period average 38.9 cm long ($n=2$, $sd=7.2$, $cv=18.4\%$) by 29.4 cm wide ($n=16$, $sd=5.0$, $cv=16.9\%$). Depth averages 16.4 cm ($n=16$, $sd=4.6$, $cv=28.1\%$).

All mealing rooms except Room 19 at 29SJ 627 contain either a heating pit or a firepit in keeping with a pattern encountered in some town sites at Pueblo Alto (Windes 1980b) and Pueblo Bonito (Judd 1954:134).

Although catchments generally are not present in either pit structures or ramadas prior to the late 900s, Roberts (1929) notes a few possible early examples (ca. 600s-700s) in houses A, B (?), and X at Shabik'eshchee Village.

Living room features. Impressions of feature frequency are largely formed from the 29SJ 627 data that comprise most of the sample. This site has fewer floor features associated with the second and third building periods than with the initial period, one characterized by the presence of ramadas.

Living room features usually include above-floor corner bins, one low walled tool storage area, one ashpit, three bell-shaped cists (all relatively small volume), and a series of pits of unknown function. Only one room designated a living room lacks a firepit, though it does contain three heating pits. Heating pits occur in only 3 out of 15 living rooms.

Room suites. Doorway connections tend to be the principal indicators of the extent of suites. Suite size varies from two to six rooms, evidencing little consistency ($n=8$, mean room no.=3.8, $sd=1.6$, $cv=42.1\%$) either within or among sites. The apparent inconsistency of suite size evident in this period, when contrasted with the previous one, may be actual, but is based on somewhat tenuous information.

Late 1000s--Middle 1100s

Dominant ceramic types associated with this period are listed in Table 2.3. Reevaluations of portions of the ceramic collections from several of the sites dug prior to the Chaco Center investigations were made by McKenna and Windes. The various opinions among Chaco Center staff members concerning the late 1000s small site ceramic association have been summarized.

The Sample

Although there are more excavated small sites with aboveground rooms associated with this time period than with any other in Chaco (between 30

and 35 with more than two rooms dug per site), and perhaps 20 more known sites in which one room has been vandalized or excavated, we have less specific information about architectural change and artifact association from this entire group than any earlier one. Only 15 of these sites have yielded sufficient information to present minimal descriptive data. Most sites are included in this period on the basis of the presence of certain ceramic assemblages (Table 2.5) and formal characteristics. These latter in late 1000s-middle 1100s construction, e.g., overall use of masonry construction and the presence of enclosed pit structures, are ubiquitous and invariably associated with whitewares dominated by a mixture of Gallup B/w and "late carbons" among the decorated ceramics. (Three or four pit structures that may have been built during this period are not adjoined to roomblocks and one is not masonry lined, forming the only exceptions in a sample of roughly 20 sites.) Nearly all of the sites of the late 1000s had previous periods of occupation, the construction phases of which were not carefully distinguished during excavation. The dearth of detailed data from this period is particularly frustrating since the early to middle 1000s and the beginning of the late 1000s are marked by intense activity in the canyon.

The Chaco Center tested only one site (29SJ 633) from this period with identifiable roomblock construction, and only two rooms were dug (Truell 1979). This site was reoccupied in the early 1200s; much of the material recovered is refuse from the later occupation. Other sites excavated by the center (29SJ 627, 29SJ 629, 29SJ 721) contain pit structures built during this period, but evidence of associated roomblock construction or modification is either absent or represented by a few poorly preserved surfaces (29SJ 627). Portions of the Three-C site may also be associated with this period.

Dimensions. A series of tables (A.9, A.10, A.12, A.14-A.25) has been compiled, listing room dimensions and data on associated floor features. New photogrammetric maps have been generated from aerial imagery of the early 1970s for several small sites in the Casa Rinconada vicinity, since ground checking indicates that existing plan views are extremely inaccurate. In some cases, backfilling and natural collapse obscured large portions of sites (Bc 52, Bc 53, Bc 57, Bc 58), so existing maps were included. Aside from the Rinconada group, no remapping was done, but where possible, ground checking was used to verify existing plans. A schematic plan view of Bc 56, west of Leyit Kin was prepared from available notes and records. Since Bc 56 is badly eroded, a more accurate map could not be drawn.

Dimensions presented in Tables A.9, A.10, A.12, A.14-A.25 were laboriously extracted from students' notes and checked against digital planimeter measurements taken from aerially derived maps. Although spot ground truth checking was made, and most of Bc 50 and 51 were remeasured, it is unlikely the data are completely free of errors.

The presence and type of floor features were also extracted from notes and manuscripts. In sites with multiple living surfaces, temporal relationships other than simple superposition are not usually understood; in

larger small sites, even relative physical position of rooms is occasionally not clear. Since detailed notes were usually present on only a few rooms from each site and occasionally the information was in conflict, floor feature information is, in nearly all cases, believed to be incomplete.

Due to our poor understanding of roomblock formations and associations within them, the discussion of this period has been organized slightly differently: (1) it is not possible to use the criterion of "empty" to distinguish storage facilities, since floor feature information is incomplete; (2) although slab and/or adobe-lined firepits and mealing bins are still most frequently found in plaza-facing rooms, any correlation of position with room use is imperfect, and non-plaza-facing rooms cannot be designated as storage areas with confidence. As a result, no attempt is made to compare the physical attributes of storage rooms with those of living/work areas for much of this sample.

Form and Construction

Size. During the previous period, regardless of the features they contain, plaza-facing rooms evidence significantly larger floor areas than rear rooms, although the excavated representatives of either room type are few. By contrast, a larger late 1000s/mid-1100s sample (80 rooms--35 rear) does not maintain significant differences between rear and plaza-facing rooms in the six sites where it is possible to discriminate room position clearly. If floor areas in the samples from this and the previous period are compared (Table 2.36), greater variability is noted for the rear rooms. This variability in late 1000s rear rooms is reminiscent of that noted in storage rooms and cists of construction before the mid-900s (Table A.2). The more uniform mid-900s/early 1000s size range may be related to a small sample of rear rooms from a series of sites in a relatively restricted geographic area. (Three of the four 900s/mid-1000s sites about which we have information are ca. 200 m apart.)

Late 1000s/mid-1100s rear room size varies more noticeably among sites than within them, which may obscure the rear to plaza-facing room size relationships apparent within some sites. For example, the rear rooms at Bc 57 (Figure A.109) have a mean floor area of 11.4 m^2 ($n=4$, $sd=0.7$) whereas those at Bc 53 (Figure A.106) have a mean area of 7.2 m^2 ($n=6$, $sd=2.6$). Plaza-facing rooms at Bc 57 are uniformly larger than rear rooms at the site, averaging 13.9 m^2 ($n=4$, $sd=0.3$), whereas the plaza-facing rooms at Bc 53 have mean areas of 7.4 m^2 ($n=6$, $sd=1.8$), i.e., essentially the same size as rear rooms. Room size variability in Bc 53, either of rear or plaza-facing rooms, is largely due to the difference in the size of rooms built at the site during two different construction episodes.

Plaza-facing rooms and the ramadas that preceded them appear to vary greatly in size through time. This range is often accentuated by two or three relatively small rooms, added during remodeling episodes (Bc 50, Bc

Table 2.36. Floor area comparison by roomblock position.

Rear RoomsMid 900s-mid 1000s

n = 13 (29SJ1360 not included)
 mean = 5.31 m²
 variance = 1.33
 sd = 1.15
 cv = 21.67%

Late 1000s-mid 1100s

n = 35 (only 6 sites included)
 mean = 6.79 m²
 variance = 6.63
 sd = 2.57
 cv = 37.95%

Front/Plaza-Facing RoomsMid 900s-mid 1000s

n = 19
 mean = 7.38 m²
 variance = 6.27
 sd = 2.50
 cv = 33.94%

Late 1000s-mid 1100s

n = 45 (only 6 sites included)
 mean = 7.07 m²
 variance = 9.99
 sd = 3.16
 cv = 44.68%

All Rooms (Size)Mid 900s-mid 1000s

n = 42
 mean = 6.20 m²
 variance = 5.63
 sd = 2.37
 cv = 38.28%

Late 1000s-mid 1100s

n = 157*
 mean = 7.07 m²
 variance = 10.83
 sd = 3.29
 cv = 46.57%

* Floor areas not computed for eight rooms in Bc 52 which are irregular in shape and lack an accurate plan view.

53, Bc 57, Bc 58, Bc 59?, and 29SJ 633). Unfortunately, relative temporal placement data as well as most dimensional and feature association information from excavations are unknown. These rooms seem to have been considered unimportant by modern excavators, perhaps because they often have the appearance of being interstitial spaces created during the incorporation of a circular pit structure into a square roomblock. Although some of these areas may not have remained in use after being thus reduced in size, a few continued to function as evidenced by the presence of mealing bins and firepits. These rooms may have been functionally similar to the small rooms that Lekson (personal communication 1981) observed surrounding post-1050s elevated kivas in large sites. Apparently many of these small rooms were used contemporaneously with the adjacent pit structures, the former frequently containing firepits and bins indicative of living room use.

Rooms with firepits possess significantly larger floor areas than rooms with other floor features, regardless of their relative positions within the roomblock. If the presence of adobe- and slab-lined firepits is indicative of living/work areas, it suggests that the larger living room size established in previous periods continued through the middle 1100s despite spatial reorganization.

No significant difference is noted between floor areas of all mid-900s/mid-1000s rooms ($n=42$) and the late 1000s/mid-1100s sample ($n=157$). Yet, at some sites, room size is consistently larger than at other sites of this or the previous periods; for example, Lizard House has a mean floor area of 10.5 m^2 ($n=11$, $sd=5.2$) and Bc 57 one of 12.3 m^2 ($n=9$, $sd=1.7$), not including one room made smaller in remodeling.

Mean room length is 3.0 m ($n=160$, $sd=0.8$); mean width is 2.2 m ($n=160$, $sd=0.6$). Floor areas at Bc 52 are not calculated despite the presence of length and width figures, since reliable floor plans are not available.

Shape. With the use of masonry more regularly shaped rooms with squared corners become more common. Masonry sites exhibiting extensive remodeling and houses such as Bc 52 (Figure A.105) and Bc 56 (Figure A.108) built against cliff faces, evidence aberrant shapes.

Length/width ratios for this period average 0.7 ($n=156$, $sd=0.2$, $cv=21.9\%$), indicative of the predominance of a slightly rectilinear shape. This mean value disguises much variability within and among sites. Uniform shape is most apparent in the original construction of "Hutch's Site" (Table A.21) where rooms are nearly square regardless of floor area, which ranges from 6.9 m^2 to 12.0 m^2 . Regardless of the quality of the small site wall construction or the regularity of layout, aboveground rooms of this period generally show no within site correlation between floor area and shape. In other words, larger rooms are neither consistently rectangular nor square. Additionally, plaza-facing ($n=34$, $mean=0.7$, $sd=0.1$) and rear rooms ($n=41$, $mean=0.8$, $sd=0.2$) in the six sites mentioned above are similar in width to length relationships and sample variability. (Four plaza-facing rooms are not included in this comparison since one had five sides and wall lengths were not available for the other three.)

Wall construction. Adobe walls are not recognized in association with this period of building, possibly due to the unlikelihood of their preservation. Compound masonry walls seem more prevalent than simple walls, although no actual quantification was undertaken. Contrary to Vivian's characterization of village masonry as lacking in variability (1970a:170), a wide range of craftsmanship and patterns is exhibited in the masonry from this period (Bullen 1941:19; Cornett 1947:2-6; Dutton 1938:62; Hawley 1937a:88-89; Kluckhohn 1939:31; Marrs 1947; Mulloy 1941:21-28; Voll 1964:3). Figure 2.15a-2.15f illustrates a series of examples of late 1000s through mid-1100s simple and compound masonry.

Maximum compound room wall height at 29SJ 633, probably incomplete, is 1.2 m. The average wall thickness in the early 1100s is 33 cm ($n=51$, $sd=7.1$) with a range of 15 to 70 (possibly 91) cm. Simple and compound examples may have been grouped together in the calculations of thickness since these were not always differentiated in available descriptions. The thinnest examples are from the central portion of the Bc 51 roomblock. The thickest compound walls of this period are at Hutch's Site (Figure A.112); they average 56 cm and are evenly laid and carefully assembled. Wall breadth is by no means consistently synonymous with superior craftsmanship at small sites.

The maximum preserved wall height for single-story houses of this period falls between 1.9 and 2.0 m. Two stories were present in portions of Bc 50 and Bc 51. Unfortunately, accurate heights of beam sockets above room floors were rarely recorded, and surfaces are no longer discernible in most cases.

A number of sites contain adobe (29SJ 633, Bc 53, Bc 362) or stone (Bc 54) wall footings. The walls of these sites do not appear to have been seated on substructure wall stubs but on intentionally constructed foundations. In many cases, it is not known whether walls extend beneath entire roomblocks. Although only two rooms were dug at Site 29SJ 633, foundations offset overlying walls in a fashion that suggests continuous prelaid footings similar to those encountered in town sites such as Pueblo Alto (Truell 1979:31-34). The thickness of the footings at 29SJ 633 is roughly equivalent to that of the upper walls (23 to 30 or 35 cm), but the footings vary in depth, extending below the wall base between 6 and 26 cm depending on the location. Wall foundations were also encountered beneath the early 1100s core-and-veneer construction at Bc 236 and Lizard House.

Most simple or compound masonry walls include stone that was not typically (other than reused ground stone artifacts) pecked or ground. Exceptions include Bc 362 (Voll 1964:3) and Leyit Kin (Dutton 1938:63), where pecked or ground stone is reported in a number of room walls. Such labor investment is unique to this period of small site construction. It is suspected that, as in previous periods, much stone was gathered from nearby sources, for example, talus slopes or abandoned houses. The masonry walls of late 900s-early 1000s houses within Marcia's Rincon are very short, with little associated wall fall. Site 29SJ 633 may have been built entirely with stone robbed from earlier nearby sites. Another example of reuse also occurs at 29SJ 633 in Marcia's Rincon. In the excavation of 700s through early 1000s structures, a paucity of metates and metate fragments was en-

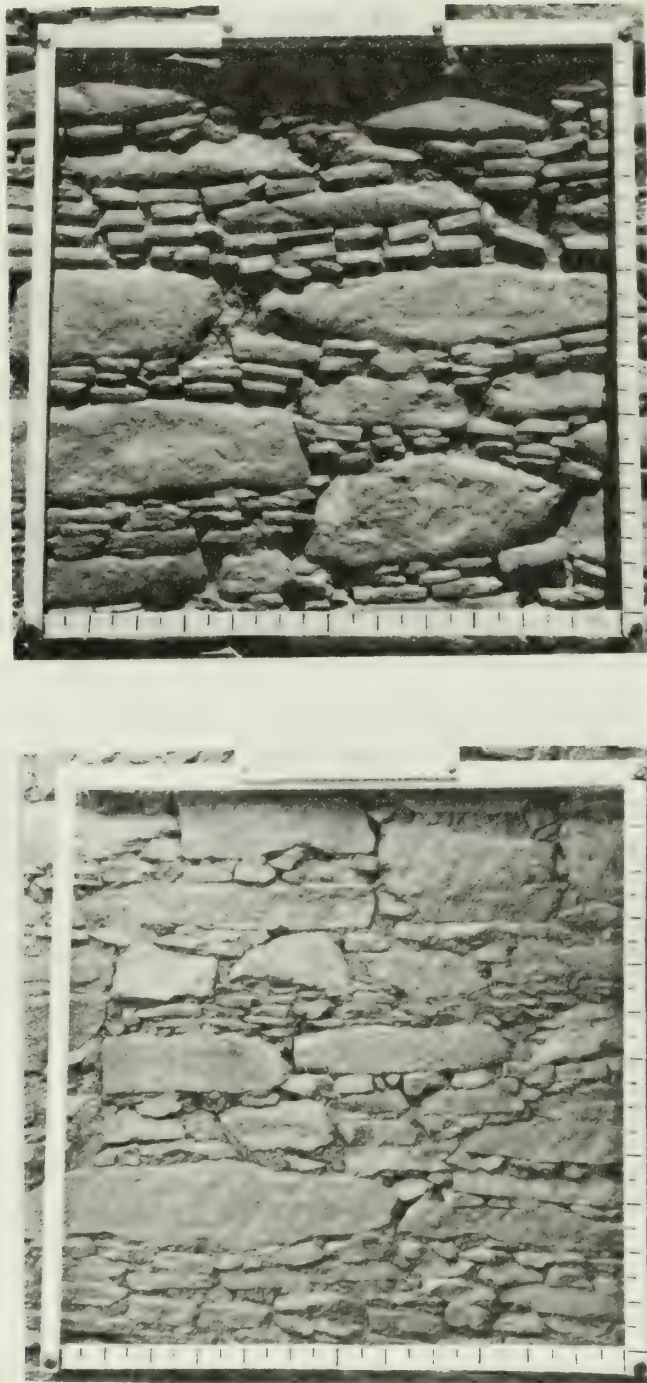


Figure 2.15. Examples of compound and simple masonry in room walls from the late A.D. 1000s-middle 1100s. (a) Bc 57, Room 2, north wall; (b) Bc 53, Room 4, north wall.

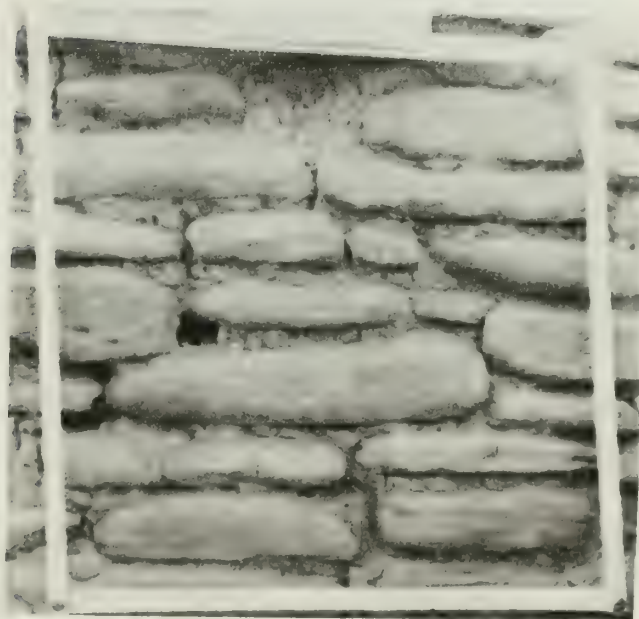


Figure 2.15 continued. (c) Bc 53, Room 11, west wall; (d) Bc 51, Room 3, west wall.



Figure 2.15 continued. (e) Bc 51, Room 2, west wall; (f) Leyit Kin (29SJ 750), Room 9, north wall.

countered. The low frequency of these implements as curated tools was even apparent. When explorations of the mid-1100s roomblock at Site 29SJ 633 were undertaken, more than 70 metate fragments were recovered during wall clearing. One complete metate was found set into a wall with its companion mano cemented into place within its trough.

The wide range of masonry variability encountered during this period may be directly attributable to the reuse of building materials either within or among sites. Both readily available yellow-tan friable sandstone and the hard darker brown sandstone were found in building from this period. Most of the 29SJ 633 stone fragments, other than the metates, are of the light friable material common along adjacent talus slopes in the rincon area.

Both sherds and sandstone spalls were used for chinking and were most commonly associated with repairs or finish work around doorways and niches. A few examples of sherd chinking were encountered in early 1000s room wall construction.

Core-and-veneer walls are present in a number of small sites, although sometimes occurring in only a few walls within a site, e.g., Room 7 at Bc 51 (Kluckhohn 1939:31).

Entire small sites are built of core-and-veneer masonry of a quality and material consistency indistinguishable from early to mid-1000s construction at town sites. For example, core-and-veneer walls at Lizard House (small site) are between 49 and 58 cm thick, and at Bc 236, roughly 58 to 69 cm. Pueblo Alto (town site) walls average roughly 56 to 60 cm in thickness. Excavated examples of small sites built completely of core-and-veneer masonry date to the early/middle 1100s, well after its appearance in large canyon sites in the 900s to early 1000s. To my knowledge, there are no earlier isolated occurrences of core-and-veneer masonry in small site construction in Chaco.

Completely excavated small sites of core-and-veneer masonry include the first construction episode at Lizard House and the early 1100s construction at Bc 236. Tests at Bc 114 (Anna Shepard's site), 29SJ 834, 29SJ 1054, 29SJ 1809, Bc 89 (29SJ 1927) and Bc 348 (29SJ 1935) reveal exclusive core-and-veneer construction, although in most cases these explorations were extremely limited in extent. Appendix B lists brief descriptions of these sites, and Figure 2.16 shows their locations.

An examination of the Chaco Center survey records indicates that core-and-veneer masonry may have been present at between 40 and 50 sites within the canyon (Figure 2.17). It should be noted that this categorization is based on surface indications that may in some cases have been no more than the recognition of unusually thick walls. In the few sites where core-and-veneer walls are actually visible from the surface, there is generally no clear evidence that this masonry type was used throughout the structure.

Only tested or vandalized structures were rechecked for the presence of this masonry type prior to compilation of the list in Appendix B. The

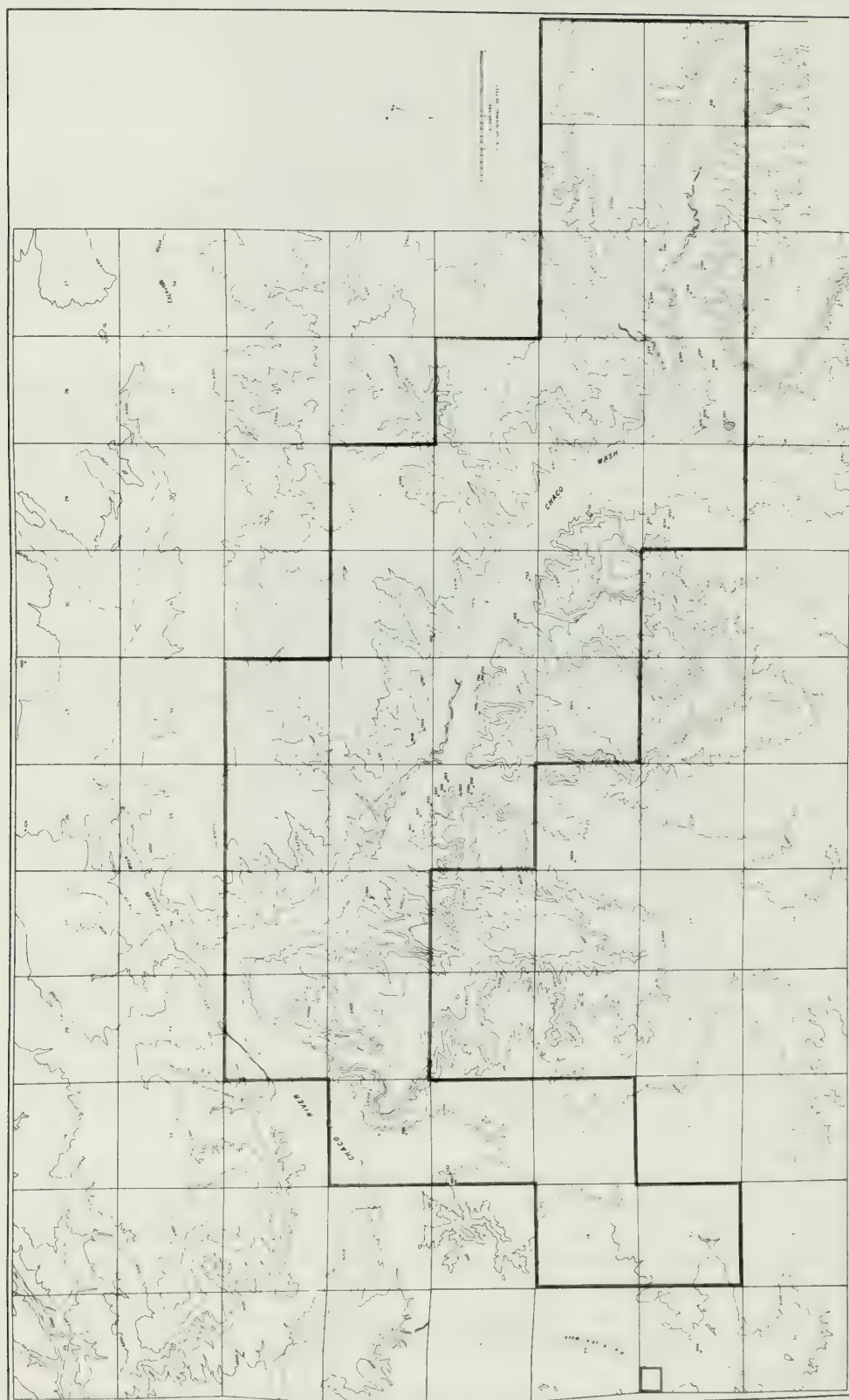


Figure 2.16. Locations of small sites surveyed as containing core and veneer masonry.

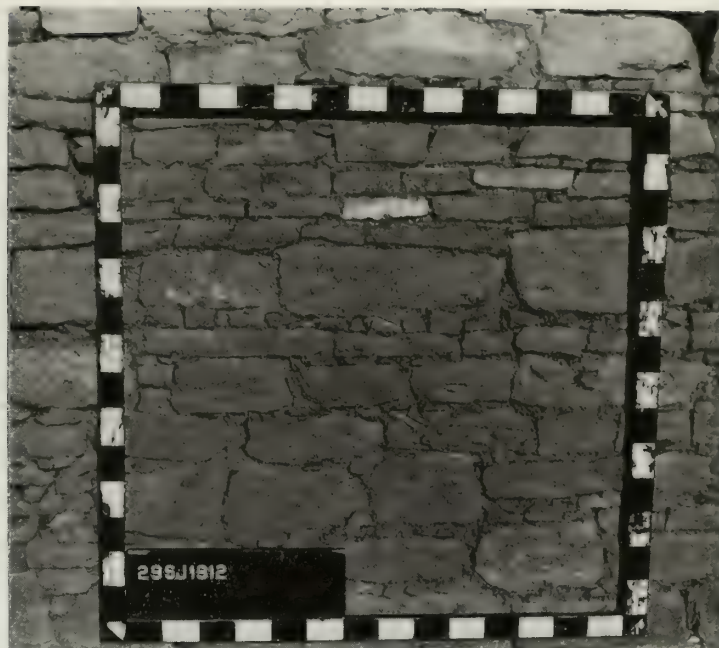


Figure 2.17. Examples of core and veneer masonry from small site rooms.
(a) Lizard House (29SJ 1912); (b) 29SJ 1927 (Bc 89).



Figure 2.17 continued. (c) 29SJ 824; (d) 29SJ 834.

distribution of tested sites with core-and-veneer masonry seems to conform to that of compound masonry small houses of this period. The greatest concentration of sites of either type from this period is near Pueblo Bonito (Figure 2.16), along both the north and south sides of the canyon. Excavated and tested sites with either core-and-veneer or compound masonry are not exclusively located on the north or south side of the canyon.

Core-and-veneer masonry small sites may be present within the outlying communities of Peach Springs (Powers et al. 1983:Table 8), Pierre's Site (Powers et al. 1983:Table 13) and possibly Muddy Water (Stein, personal communication 1981).

Surficial examination indicates that none of the sites encountered on the Chaco Center survey with evidence of core-and-veneer masonry has more than 30 to 35 rooms. If numerous core-and-veneer masonry small houses were present within the canyon in the early to mid-1100s, the labor investment involved in their construction would be appreciable. Hayes (1981:30) indicates that about 300 small pueblos were occupied in "early Pueblo III" times. Since many of these probably represent continuing occupation, it is not presumed that all 300 were built during Pueblo III times.

Although perhaps not a representative indicator, most excavated sites associated with long-term occupation at this time expanded most noticeably during the early to mid-1100s. The construction efforts of the early to mid-1100s must be considered in conjunction with the extensive expansion apparent in both small sites and towns in the canyon at this time.

Wall features. Numerous features not previously encountered in walls of 1000s construction are found in early 1100s rooms. Wall niches have been recorded in six (possibly seven) rooms at five sites (Tables A.12, A.20, A.23-A.25). Of these, only Bc 236 was built of core-and-veneer masonry and by necessity the niches are shallow. Five examples are in rooms that also possess firepits. No information is available on floor associations for one room, and the seven possible examples are discussed immediately below.

Doorways and vents. Doorway locations are shown on site plan views (Figures A.102-A.116). Room 50 (T28) at Bc 51 and Room 6 at Bc 53 are the only rooms that possess exterior doorways on the non-plaza-facing sides of the pueblo, and both of these examples were ultimately plugged.

Doorways vary in shape from rectangular to rectangular with a tapering upper portion to T-shaped. One example from Lizard House is described as Y-shaped (Maxon 1963:9) with the arms of the Y extending diagonally upward from the center.

One or possible two corner doorways (both from Bc 51) have been recorded. One is located in the northwest corner of Room 17 (Chaco Center Archives # 1717) and is described in student excavation notes as roughly 47 cm wide with the top portion missing. Unfortunately, this feature is no longer visible. Vivian does not mention it in his 1950 stabilization re-

port, although his assistant Ray Rixey shows an aperture in his sketch of the room. The second example is obviously a "corner something," but whether it functions as a doorway or a ventilator is not clear (Rixey 1949). This example is located in the northeast corner of Room 40, and was excavated by Gordon Vivian in 1949 in conjunction with site stabilization (Vivian 1950:103). Rixey's plan view (1949) shows this opening and describes it as a "doorway" despite its 20-cm width, which may more accurately qualify it as a ventilator. This feature is still visible today; it cuts through the room diagonally, slightly offset to one corner of the wall.

At Site 29SJ 633, a break in the southern end of the west wall of Room 7 was not excavated, but may have been either a vent or a niche, remodeled from a doorway opening.

Murals, incised stones, and petroglyphs. To my knowledge, painted murals have not been encountered on any excavated room walls; however, Kluckhohn (1939:32) notes that gypsum may have been included in the plaster in Room 2 at Bc 51.

Incised building stones such as those found in town site walls occur in very few cases. Examples, known from Bc 50, Bc 57 (Kiva C), Bc 59, Leyit Kin, and possibly Lizard House, are building blocks that have incised lines in simple straight line or hachure patterns. This list is probably quite incomplete.

Petroglyphs were noted on the cliff face behind rooms at Bc 52 and on a rock beneath Room 7 at Lizard House. At the latter site, an illustrated slab fell from the adjacent cliff face prior to the construction of the site and Room 7 was built over it. At Bc 52 and the talus sites adjacent to cliff faces, the drawings could either precede or be associated with the room use, or perhaps even postdate the occupation of the sites.

Wall plaster and mortar. Although plaster remains on at least some interior faces of room walls at most excavated sites, no exterior plaster has been found, perhaps due to preservation factors. The remaining walls often are not above one meter in height, and therefore do not usually shelter their basal portions.

Interior plaster is described as sandy brown adobe (Voll 1964:4; Brand et al. 1937:71; Truell 1979:34-44). At 29SJ 633, areas around wall features, such as door jambs, are plastered with a thick gray clay (Truell 1979:41). The maximum number of coats of plaster recorded from a room of this period is four (Bc 50, Room 1); though spottily recorded, this clearly contrasts with the numerous coats found in pit structures of this period.

Mortar is composed of brown adobe, stiff gray clay, and a light yellow clay. The potential sources of similar materials encountered in roofing adobe from Pueblo Alto are discussed by Love (1980). Seimers (personal communication 1975) concludes, unlike Love, that gray Menefee-derived clay

used for plaster may have been taken directly from the formation as opposed to the channel margins.

The Bc 51 colonnade. Room 42 at Bc 51 was excavated by Gordon Vivian during ruins stabilization in 1949. Rixey's plan view (Vivian Archives # 228) shows five columns, the westernmost of which is incorporated into the northeast corner of Room 41 (Figure A.104). Rixey's plan view indicates the presence of one large beam set upright in a posthole in the southwest room corner, the only floor feature associated with the upper surface of the room. This plan also indicates the presence of a wall enclosing the low east side of the colonnade, which is not noted in Vivian's 1950 stabilization report nor apparent in the accompanying photos.

The columns associated with the Room 42 colonnade were apparently not joined across the base at the first floor level. The spaces between the columns were subsequently plugged with a cruder contrasting masonry, a contrast possibly further enhanced during stabilization. No signs of internal subdivision are apparent, and this single long room with an estimated floor area of 20.5 m² has been compared to the somewhat similar Chetro Ketl colonnade.

The Bc 51 plan view shows a wall extending north from the second westernmost column; other columns probably do not represent simple terminations of earlier walls, for they are finished on all sides. The example with the wall extension was not reexamined.

This feature forms the easternmost protrusion at the southern end of the roomblock. Rooms 45 and 46 immediately to the south appear to predate the colonnade. Rixey shows the simple masonry of the colonnade walls butting against the north wall of this room suite (Vivian Archives # 1717).

Room 42 north wall construction represents a unique small site occurrence of freestanding columns. No floor features, other than the southwestern post, are associated with the upper surface of this room. Two restorable vessels were recovered from the fill of this feature. McKenna identified the vessels (from photographs [Vivian n.d.b]) as a Toadlena B/w-Nava B/w seed jar and a Mancos B/w bowl, both associated with the early 1000s through 1100s period in Chaco (personal communication 1981).

Roof construction. Roofing materials, such as beam fragments and matting segments as well as adobe roofing impressions, were present in many excavated rooms from this period. The recording is again exceedingly spotty. Little material was apparently collected and virtually none dated.

Tables A.11, A.13 present what is known about roofing materials from Bc 50 and Bc 51 respectively, since there is more information from these sites than any others. Although little material has been identified to species, aboveground room beams examined are cottonwood, pinyon, and juniper. One piece of ponderosa pine was recorded by Bannister (1965: 6[2]:Table II) from a now nonexistent Room 15 at Bc 50 (Table A.11).

Maximum beam diameters recorded are between 20 and 22 cm, whereas mean diameter is between 5 and 11 cm. Intact roof segments from Bc 50 and Bc 51 indicate two postulated roofing patterns: (a) only one basal viga of about 20 cm in diameter, underlying small 7- or 8-cm poles, was used or (b) small poles (7 to 11 cm), placed relatively close to one another, i.e., 20 to 25 cm apart, were used exclusively.

The apparent use of few large-diameter roof members facilitates roof construction tremendously, particularly in Chaco where the availability of wood is low. The large members are primarily cottonwood. Although the identified sample is small, the absence of ponderosa pine is rather conspicuous, indicating the logical selection of materials available nearby. Even in large buildings, such as pit structures, ponderosa occurs only rarely in roof construction. It does occur in small site roofs from this and previous periods, and despite an extremely restricted sample, seems to form a small portion of the roofing materials used, in contrast to roofs in towns.

Similarly, Douglas fir occurs extremely infrequently in small site construction, and is not found in any room roofs. No examples of true fir have been recorded in either pit structure or aboveground rooms.

Multistory construction. Latilla sockets were found in a series of offset substructure (masonry) walls within Bc 51--rooms 16A, 16B, 17, 18, 19, 21 (Figure A.104). These walls, located in the central portion of the pueblo, may have been the nucleus around which the site grew. The masonry forming this substructure is probably associated with the middle to late 1000s and represents remodeling within this core area. Little is recorded about associated floor depths, but it is assumed that these sockets were located in the upper walls of the lower rooms, and thus may not represent multistory construction. Also associated with this group are rooms 3, 4, and 5, that have associated latilla sockets. The lower rooms do not seem to be offset from those above.

At Bc 50, however, the quantity of wall fall, presence of viga sockets, and heights of remaining walls (up to 2.7 m) (Table A.10) indicate that the central portion of this structure, including rooms 1, 2, 3, 4, 22, and possibly 14 (Hibben 1937:71), did have two stories. This is the only freestanding two-story small site that has definitely been identified, although it is suspected that further investigation would disclose others.

Several sites situated at the tops of talus slopes have roof beam sockets pecked into the adjacent cliff face, indicative of their multistory construction. Some researchers suggest that these cliff face beam seats represent architectural adaptations of the 1200s. Excavated talus sites that have construction episodes dating to the late 1000s through middle 1100s include Bc 52, Bc 55, and Bc 56. Both of the tested sites of 29SJ 1935, located behind Pueblo Bonito (known for its six-toed human feet petroglyphs), and 29SJ 1936 or Talus Rock Shelter (Hawley 1934:63) (with a kiva dendrodated to the early 1100s) have viga seats on adjacent cliff faces.

Floors. Floor plaster may consist of hard-packed adobe (Bradley 1971:31; Hibben 1937:72; Mulloy 1941:34; Voll 1964) or stiff gray clay, as at 29SJ 633 (Truell 1980:45). Kluckhohn suggests that the floor in Room 8 at Bc 51 may have been blood-soaked (Kluckhohn 1939:33). One flagstone floor has been noted from Bc 51 (Kluckhohn 1939:33).

Floor features. Incomplete recording of floor features exists from excavated early 1100s small sites. What is known is listed in Tables A.9, A.10, A.12, A.14-A.25.

As at Pueblo Alto, areas of fire-reddened floor plaster are encountered in some rooms associated with this period. Those listed on tables A.1-A.25 appear not to have been associated with charred roof beams. These floor burns may be more common in rooms associated with 1200s occupation, although the latter sample is too restricted for comparison. It appears as if small fires were either built directly on the floors or heated materials were placed in these areas, which are similar to the small unlined heating pits associated with storage rooms known from the previous two periods.

Firepits. Rooms with adobe and/or slab-lined firepits ($n=48$) have significantly larger floor areas ($p>.01$, $d.f=104$) than other rooms for which floor features are documented ($n=59$). Due to differential documentation (this sample does not exactly match that used for the preceding comparison of rear- and plaza-facing rooms.) Of the 48 firepit-containing rooms, 23 (47.9%) can be said to be plaza-facing (adjacent to pit structures), although doorways onto plaza surfaces were not always noted. Seventeen rooms (35.4%) are interior or rear, and eight are of questionable classification. Although the correlation of room position with function is, as in the preceding period, weaker than the pre-900s for example, rooms with firepits (living rooms) cluster at the large size end of the room sample. (Firepit size was not monitored for the pre-900s.)

Mealing bins. Rooms with associated mealing bins show no significant difference in floor area when compared with rooms with other documented floor features, but the sample (9 to 11) is too small for adequate comparison.

All but one (at Bc 236) of the rooms with mealing bins are plaza-facing. Bins occur singly or in groups of two, three, four, or five. Most frequent are single examples, present in five cases, with groups of two and three bins each occurring in two cases. Rooms with single bins range in floor area from 3.7 to 13.9 m².

Room 45 at Bc 51, which contains five bins and a walled corner bin or granary, seems to have specific suite associations, with doorway connections to Rooms 50 (T28) and 48, and does not seem to have been communally used. Room 48, in its last use, represents a unique occurrence of a small site square kiva; however, the doorway between rooms 47 and 48 was blocked prehistorically and it is not clear whether it was associated with this room suite in its final form.

Mealing bins appear in the late 900s or early 1000s, although it was not until the early 1100s that metates (still troughed) were set in rows of slab-lined bins. These mealing bins consist of a series of sandstone slabs into which metates were set with stiff gray clay. Associated catchments continue to be characterized by stones or adobe collars as in the previous period. Unfortunately, practically nothing is written about Room 47 (a mealing room) at Bc 51, which was dug during ruins stabilization by Gordon Vivian. Room 47 contained 93 manos, an axe, and other groundstone artifacts as well as a number of metate fragments (Rixey 1949; Vivian 1950: 110).

Mealing bins are no longer consistently associated with firepits or heating pits, in contrast to the previous period. In fact, only three of the eleven grinding rooms contain these features (on the same surface). Some rooms were probably used exclusively for mealing unlike the multi-purpose work areas of the previous period.

Some sites (Bc 53, Bc 54, and Bc 56) apparently contained no mealing bins, although recording was poor in all these cases. Bc 57 and Bc 58 each have a single grinding bin for the nine of ten rooms excavated. It may be that formal bins were not consistently constructed even in the early 1100s. Since troughed metates continued to be used through this period, there still may have been minimal necessity for bins.

Room suites. Increased diversity in the arrangement of rooms within suites and among sites is apparent in late 1000s through middle 1100s construction. At sites such as Bc 50, Bc 53, Bc 57, Bc 59, and 29SJ 633, the lines of rooms located to the west of the pit structures remain apparent (as in previous periods). Unlike previous periods, fire-containing rooms are not necessarily plaza-facing. Pit structures are positioned nearer to the associated suite of rooms and frequently are enclosed with walls of unknown original height. This pattern is common elsewhere in 1100s and 1200s construction in the Anasazi region. At Leyit Kin (Figure A.102), it appears as if the households formed square configurations around their associated pit structures.

Some very different patterns occur as well. The initial construction (core-and-veneer masonry) at Lizard House and Bc 236, both fully excavated, shows relatively high numbers of rooms (perhaps nine each) associated with single pit structures. Although this higher frequency of rooms (average number is five to six per pit structure in this period) immediately recalls small site versions of towns that contain a notable abundance of rooms in comparison to kivas, these sites have a unique feature. In both sites, where floor surfaces were excavated, every room contains a slab-lined fire-pit (Figure A.114). It is not clear how much later remodeling may have affected this picture at Bc 236. The situation is not only in contrast to other small sites, but definitely varies from the sparse occurrence of such features in towns.

It has been noted that Bc 57 and the first construction episode at Lizard House contain rooms that are uniformly larger than other sites of this building period.

Another site of interest in terms of internal organization is Bc 51, which has a haphazard room arrangement and represents the only small site occurrence of associated pit structures located to the west and northwest of the roomblock (Figure A.104). Regarding this as a simple case of accretion seems inadequate. Other sites in the immediate vicinity (e.g., Bc 50, 53, 57, and 58) with, in many cases, equal longevity, developed in a relatively orderly fashion, essentially retaining the symmetry of their original construction. Although the room suites at Bc 51 (Figure A.104) seem equivalent in size to those recorded elsewhere and the organization of the southern portion of the site is similar to that of many other sites, the entire pueblo does not follow the orderly pattern noted at Bc 50, 53, 57, and 58. The irregular ground plan of Bc 51 is of interest when one encounters statements such as "...there is little in Bc 51 which was markedly different [from Bc 50]" (Kluckhohn 1939:7), or "...typical small sites like Bc 50 and Bc 51" (Winter, personal communication 1979). It is the word "typical" that has slightly elusive connotations in early 1100s small site construction.

The Bc 51 anomaly is also apparent if one studies the plan view of Bc 52 (Figure A.105), which so elegantly defies categorization, although some would also argue that this form was produced by accretion.

Middle--Late 1100s

Roomblock Modifications

Two roomblocks not included above are the middle to late 1100s modifications at Lizard House (Figures A.113, A.114) and Bc 236. These remodelings indicate a period of hiatus with the previous site uses (Bradley 1971:65; Maxon 1963:31). Both of these may belong to the period subsequently described for the late 1100s through 1200s.

Lizard House shows a definite difference in the masonry quality and in the formal arrangements between its two periods of occupation (Maxon 1963: 2, 27, 30-31) (Figures A.85, A.86, A.113). Maxon suggests that the abandonment of Lizard House took place 15 to 20 years after the postulated A.D. 1130s construction of the second occupation period (1963:31), a building episode that may be even later (late 1100s/early 1200s) than Maxon suggested.

Renovations are primarily apparent in rooms 7, 8-9, and the kiva at Bc 236. Alterations include changes in the style of masonry in Room 7 and the kiva, and subdivision of Room 8-9 (Figure A.114). In the kiva, the renovation included modifications in both pilaster height and the construction of

the southern recess with the addition of blockier and sloppier masonry (Bradley 1971:18, Figure 3).

Late 1100s--1200s

Gallo Cliff Dwelling (Bc 288) (Abel 1974) is the only single-component house associated with this period, although the final reuse of rooms 7 and 8 at 29SJ 633 dates to the middle 1200s. It is suspected that portions of Bc 52 and Bc 56 were occupied during this period. Most of the sites in the Casa Rinconada area, which were probably occupied from the 700s or 800s (or earlier) through the middle 1100s, did not yield more than a few sherds that would date them to the late 1100s-1200s.

The majority of the architectural remains at 29SJ 633 were not excavated. An extensive trash accumulation and some primary association ceramics from a 1200s reoccupation were encountered in Room 7 (Truell 1980). Ceramic temper, paste, and design indicate a continuum rather than the total break that would have been expected had Mesa Verde immigrants entirely replaced the previous population (Toll et al. 1980:45). Toll and others (1980:45-46) note a diversity in ceramic attributes, as derived from the San Juan area, the Chuska Valley, and from local manufacture. They suggest that, rather than a reoccupation, an economic shift occurred in the canyon in which the San Juan area gained greater precedence.

Despite the limited architectural information available, it has been suggested by previous researchers that talus or cliff face locations were preferred during this period, indicative of Mesa Verdean influence. There is some ceramic evidence to support this suggestion; however, reexamination of survey records on cliff or talus sites (over two rooms in size) indicate most had been occupied, at least intermittently, since the 900s (a consistent utilization often overlooked). These sites might have been preferred by the occupants of the 1200s. The appearance of one- or two-room granaries along cliff ledges during this period may be indicative of greater affiliation with the San Juan area.

Few architectural modifications were apparent in the later occupation of rooms 7 and 8 at 29SJ 633. The most noticeable differences were in the lack of well-constructed hearths and in the change in burial patterns. Four burials were found in association with the excavated living surfaces dated to the 1200s; only floor burns were noted in these rooms, which may have been readily abandoned by 1200s occupants. None of the roomblocks adjacent to 29SJ 633 was excavated.

Gallo Cliff Dwelling (Figure A.117) consists of four rooms and a pit structure. The only characteristic of Mesa Verdean architecture present is a masonry deflector blocking the southern end of the structure, a feature similar to those found in Long House (Cattanch 1980:51) and Mug House (Rohn 1971:72) on Wetherill Mesa. The locally consistent elements of Mesa Verde architecture of this period are not apparent, nor is the way in which

these architectural patterns might be compared with those of the San Juan area. It has been shown how inaccurately the term "keyhole" kiva has been applied to Chacoan pit structures in comparison with the Mesa Verde area, and how similarly meaningless the number of pilasters has proven to be in establishing preferences for local pit structure roof patterns.

TRASH MOUNDS

Extensive extramural trash accumulations, most commonly associated with houses that experienced long-term occupation, are present at many small sites.

Prior to the mid-800s, large trash deposits outside of structures were not common. Although surface accumulations are definitely present at these sites, they are generally thin sheet deposits. Abandoned pit structures were preferred dumping locations, offering convenient, contained areas, which, after the removal of the roof for use elsewhere, would have presented hazards to young children. At these early sites, trash was also scattered throughout the habitation area, as at Shabik'eshchee Village, where not only shallow abandoned pit structures but also vacant areas of exposed bedrock were covered in refuse.

The increased use of formal external trash mounds in the early 900s in Chacoan small sites was accompanied by more and more consistent placement of these deposits to the south and southeast of site structures. Trash deposition within structures, whether pit structures or aboveground rooms, continued throughout the small site occupation in the canyon. Windes (1982:7) notes that trash associated with late 1100s/1200s sites, however, is more frequently encountered within the roomblocks than in previous 900s through middle 1100s houses. The combination of a decrease in site expansion and a decline in overall population in the late 1100s and 1200s, probably permitted the increased use of abandoned rooms for trash dumping. This pattern of using abandoned structures continued, however, during periods of occupational expansion, when existing structures were undoubtedly remodeled rather than abandoned. Such is definitely the case in some small sites of long-term occupation where pit structures were remodeled and offset slightly from the original structures, but essentially the same depression was used for several hundred years while the site remained active. With the decrease in population, the use of these nearby areas for trash deposition may have been more extensively exploited. Little is known about the extent of canyon occupation at late 1100s/1200s small sites since, as Windes notes, this component in many sites may have gone unnoticed (personal communication 1981). A decrease in overall habitation is presumed, but the actual extent is not known.

Contrasts have been drawn between large and small site extramural trash mounds in terms of the type of accumulation, the rate of deposition, and the structures that the mounds themselves represent. The frequencies and forms of pottery (Toll and McKenna 1983), bone (Akins 1982), and exotic

lithic materials (Cameron 1982) that occur in the late 1000s Pueblo Alto (and other large site) trash mounds are undeniably distinctive. These large site deposits do not appear to be just a greater accumulation of small site domestic refuse. Concomitant with such a pronounced enlargement in scale would be a necessary alteration in the associated organizational structure. For example, support of the work force involved in house construction and maintenance might make domestic accumulations inseparable from materials encountered in small site refuse deposits.

Even though small site extramural trash accumulations do not evidence the microstratigraphy encountered in Pueblo Alto trash mound tests (and those at other large sites), it is erroneous to assume that the former lack stratigraphy expressive of depositional distinctions (Bc 50/51, Leyit Kin, 29SJ 627, etc.). Small site mounds often have been seriously disturbed historically and prehistorically by animal burrowing, interments, pot-hunting, and erosion. Small sites do not evidence the extensive and rapid or single episode accumulations of large site mounds. Indications of single dumping episodes have been lost over the years; however, even major periods of deposition often remain distinguishable. Where trash deposits have been encountered within such protected areas as abandoned pit structures, complex profiles showing original configurations of the accumulations have been observed. Although the deposits are not comparable, the charcoal laminae that have been claimed not to occur in small site trash deposits are, in fact, very apparent.

Chapter Four

Summary and Conclusions

Chaco Center investigations have contributed much to our understanding of how small houses were built and arranged internally through time, and how these aspects relate to those of large structures in Chaco. These findings have altered existing notions considerably.

Although it is easy to see why previous Chaco investigations devoted much attention to the description of the architectural dichotomies observed between large town structures and small sites within the canyon, this approach tends to overlook the fact that these two classes of sites seem to belong to a single architectural continuum. As a result of the lack of recognition of this continuum, an appreciable amount of structural and organizational complexity and variability apparent through time has been rather arbitrarily combined into a single "small site" or "village" category. Furthermore, small sites have surprisingly often been characterized as being very consistent architecturally.

The previous chapters summarize the descriptive information available on formal aspects of excavated Chacoan small sites. For many reasons, large portions of this document should have been written before the center began its inquiry of the canyon. The "written" aspect is essential, not only to make the data available to a wider audience, but also to ensure a more orderly and thorough compilation. Such preparation would have identified problems with the existing data base and indicated the most efficient methods of obtaining the necessary data with the least impact on the sites. Lekson believes that if such a study had been made prior to the center's excavations at Pueblo Alto, it is doubtful that this site would have been examined at all (personal communication, 1982). Excavated sites could have been reexamined, minimizing impact while yielding comparably large amounts of data. Although it is certain that careful reexamination of previously excavated small sites in Chaco would also have yielded large amounts of data, particularly if as much information as possible had been assembled previously, the center's examination of previously unexcavated small sites of the early 1000s was essential to understanding canyon development. Many sites, excavated before the center's research began, had been occupied in these earlier periods, and reexcavation might have provided additional

additional information regarding these periods. This observation is not presented simply as a criticism in retrospect, but rather as a guideline for future research of this type. The Chaco Center did, in fact, initiate such an archival inquiry, amassing data on small and large sites alike; however, in areas such as Chaco where so much previous work has been undertaken, it is essential to complete such studies prior to exploration, particularly in long-term research projects.

FORM AND ORGANIZATION THROUGH TIME

Late 400s--Early 900s

Late 400s-600s spatial organization is similar to that observed in contemporaneous dwellings in many areas of the Anasazi region. Pit structures of predominantly south to southeast orientation are located southeast or east of associated shallow, subterranean, circular storage cists. Pit structure floor depth seems to have been dictated by bedrock depth. Associated storage cists range in number from one to possibly as many as ten, a factor that may be dependent upon the longevity and intensity of use of the associated pit structure. In dense pit structure concentrations where long-term construction took place, such as at Shabik'eshchee Village, reuse and remodeling of storage cists by later site occupants (through the 700s) is noted. At these sites pit structure/cist orientation is not maintained as described above. Trash deposits were frequently placed in abandoned pit structures during this period and up to the middle or late 800s.

The pit structure to storage cist relationship is generally maintained through the early 900s, with the addition of intermediate ramada areas consisting of parallel rows of upright posts supporting light roofs. These unwallled ramadas formalized the work areas around outdoor hearths of the 600s and 700s houses. They frequently contain numerous associated features and are viewed as being somewhat seasonally restricted in their use. Low adobe walls occasionally defined the ramada areas. Ramada surfaces are generally at the same level as those of the adjacent plaza surfaces and the tops of the pit structure walls, although one example had a slightly sunken surface. By the middle 700s, storage rooms assume an oblong shape and become joined to one another in rows the width of a single room and adjacent to the ramadas. These areas may have been fully walled during this period (in contrast to those associated with the 500s through early 700s), and are therefore designated rooms as opposed to very large cists. Little information has been obtained regarding superstructure configuration for either period. Storage room floor surfaces are generally recessed, as in the previous period, 20 to 30 cm below associated ramada and plaza surfaces. Most frequently, storage rooms are constructed in groups of two with an adjacent associated ramada (equivalent in length to that of the combined storage rooms). Generally the roofed portion of the ramada is wider than the storage facilities. A size and/or shape dichotomy, sometimes noted between the

two storage rooms within a suite, is maintained across sites in all the associated suites. There may be some functional distinction between these two rooms, which are lumped in the "storage" category, but differences in use are not apparent from pollen or flotation evidence, or from floor feature or other artifact associations.

From the late 400s through the early 900s, pit structures maintain floor features associated with living and work activities that would have been usable year round, although evidence of ceremonial offerings and small volume storage are generally also present. During the 800s, pit structure orientation shifts to a more southerly direction. Trash deposition in formal exterior mounds becomes more common and extensive by the end of this period in the late 800s, although sheet deposits are frequently present in earlier sites. Based on ceramic evidence, Hayes (1981:26) notes that survey data indicate a decided increase in the number of sites built in the early to mid-700s/early 900s period that do not overlies earlier houses.

Middle 900s--Middle 1000s

Most middle 900s through early 1000s excavated sites maintain the previously described "pit structure to aboveground roomblock" locational relationship. By the late 900s or early 1000s, plaza-facing rooms become fully walled. Flat-laid masonry, although present in a few small site walls from the 500s and 600s on, first becomes widely used in aboveground room construction in the late 900s or early 1000s. Interestingly, pit structures do not generally become masonry-lined until almost 100 years later.

Although most plaza-facing rooms maintain living room functions, and non-plaza-facing rooms continue to be featureless with slightly recessed floors, it is during the late 900s that this function/position correlation is adhered to less strictly, both in new construction and remodeling. One site evidences three rows of rooms instead of the usual two, for example.

The few excavated pit structures from the early 1000s possess a low number of floor features in contrast to those built before the late 900s. This change appears to have occurred abruptly, shortly after the enclosure of aboveground living rooms. Masonry lining (appearing by the late 1000s or early 1100s) does not occur simultaneously with these changes in pit structure form.

Plaza areas have associated slab-lined firepits, occasionally protected from the wind by short masonry walls. They may replace outdoor cooking and food-processing areas of the earlier ramadas.

Late 1000s--Middle 1100s

During this period, pit structures are constructed closer to the room-

block and set into enclosing walls, the tops of which presumably conformed to the pit structure roof height, at or slightly above the surrounding ground surface. At one excavated site, Leyit Kin, pit structures are surrounded to such an extent as to be fully enclosed in square roomblock configurations. The roomblock to pit structure relationship noted in previous periods, i.e., with two rows of rooms placed to the west of the pit structures, continues to be present at a number of sites.

Several small houses of this period evidence constructional characteristics previously associated solely with large Chacoan structures, such as core-and-veneer masonry, exceptionally large room size, etc. These characteristics occur in small sites roughly 100 years after their first appearance in large site construction.

During the previous period (mid-900s--mid-1000s), the correlation between aboveground room position within the roomblock as determined by function is less pervasive than prior to the mid-late 900s. During the early 1100s, there seems to be a further departure from this organizational pattern with slab- and adobe-lined firepits occurring with some regularity in non-plaza-facing (i.e., non-living) rooms. Finally, living room size reflects greater size variability than in preceding periods.

One site, Bc 51, possesses a haphazard room agglutination pattern not encountered in other small site construction, even of long-term occupation with extensive remodeling.

The diversity in small site construction and layout apparent during this period does have precedence in previous construction; yet, the variety of site organization is definitely greater during this period than previously. A much larger sample of excavated sites is associated with early to mid-1100s construction and occupation than with any earlier period discussed here, a fact which may, in part, account for the visibility of these organizational differences.

The extent of extramural trash mounds associated with houses is related to their placement directly upon previous deposits, forming the uppermost accumulations and giving an impression of bulk. This period represents the last extensive small site occupation in the canyon. Uninterrupted occupation in small site locations established in the late 800s or early 900s often continued through the mid-1100s. Sites seem to have been built and rebuilt in one spot, possibly in part dictated by adjacency of arable land. Site distribution through time is discussed briefly below.

Late 1100s--1200s

Previous researchers have assumed that these sites of the late 1100s-1200s were built by migrants from the San Juan area who entered a now unoccupied canyon and constructed houses at the top of talus slopes as they had

in their northern homeland; however, survey ceramic collections indicate that the initial occupation of most upper talus locations predates this period, frequently extending back into the 900s. Thus, whether these locations were actually preferred for 1200s construction is not clear. Toll, Windes, and McKenna (1980) note that the limited sample of ceramics from 1200s deposits within the canyon indicates a continuum with pre-existing ceramics, rather than the break one would suspect with discontinuous occupation. Although greater San Juan influence may have been present within Chaco, pre-existing ceramic patterns are traceable. The architectural evidence from small sites is so limited that it is impossible to evaluate the suggestion of a continuum on a structural level. The features in two rooms of 29SJ 633, tested by the Chaco Center in 1978, indicate the 1200s site was reused by people who were not the original occupants.

Survey and limited excavation data suggest that much of the trash from this period was deposited within roomblocks rather than on extramural mounds. This may be indicative of less intense use of roomblocks, leaving suites vacant and available as dumping locations.

Site Organization and Increased Early 1100s Variability

It appears as if earlier (A.D. 500s through early 900s) individual pit structures exhibit moderate formal variability from site to site, mainly in the diversity in size and shape of the main chambers and antechambers (or ventilators). There appears to be increasing standardization within and among sites up until the early or middle 1000s.

During the late 400s through mid-1000s, overall site organization (with a few notable exceptions) is, relatively consistent from site to site, with that of aboveground structures located to the west or northwest of pit structures. In the late 1000s and early 1100s, an increase in organizational variability is noted (Truell 1981); however, few excavated small sites from earlier periods exhibiting typical arrangements survive, indicating that this early 1100s variability is not without exception. (A larger excavated sample from the late 1000s through middle 1100s may make variability within that period more noticeable.) The consistency of site patterning and internal suite arrangement, primarily noted in the Chaco Center's sample prior to the late 1000s, does seem to argue for any increased organizational variability through time, regardless of sampling inadequacies. A definite increase in small and large site construction is noted during this period, although the small site expansion is less easily quantified. Some propose that population growth promotes role diversification, and this might in turn be responsible for the greater variability in spatial arrangement and functional diversity apparent within houses (Hunter-Anderson 1977; Plog 1974). Although specific information to verify functional variability beyond formal characteristics (activity area information) is lacking for the most part, the increased construction activity of the early 1100s, considered indicative of increased canyon population

but perhaps drawn from a wider area surrounding Chaco, seems unquestionable.

Increased small site organizational variability co-occurs with the appearance of large site characteristics in small sites, but is not fully explained by it. Sites of atypical organization do not necessarily resemble small-scale versions of 1100s town construction, although a few (Lizard House, Bc 236) might be considered similar.

Specific floor features and structure characteristics, particularly within pit structures (e.g., ventilator style, southern recess form, etc.), do not seem to suggest the formal divergence often seen in conjunction with unusual site organization.

SMALL SITE HOUSEHOLDS

The lack of reliable information, for most of the sample, concerning artifact associations has limited examination of the use of space to strictly formal characteristics. Lacking activity area detection and analysis, the level of refinement in the recognition of functional changes within site units and between houses through time is obviously restricted (Breternitz 1982; Gillespie 1976). Although many previous researchers, relying primarily on form (Brew 1946; Bullard 1962; Hayes and Lancaster 1975; Morris 1939), have identified changes in Anasazi structural unit types and in households through time, the detection of household clusters, described by Breternitz as "facilities, residues and other archaeological remains which in aggregate make up the archaeological expression of a household" (1982:10), is not possible without artifact data.

It should be further noted that in sites excavated by the Chaco Center, few primary deposits of any type were encountered. Small site locations within the canyon were frequently occupied for several hundred years. Successive construction in the same location obscures earlier use surfaces, which were also often intentionally stripped of usable materials in rebuilding or remodeling. The systematic reuse of materials, including building stone and timbers from abandoned sites during prehistoric occupation, suggests that small site dwellers, in contrast to their large site neighbors, meticulously recycled everything possible.

Aboveground Room to Pit Structure Ratios Through Time

Evidence from a limited group of excavated household units (500s through the early 700s) indicates that three was the most frequent number of storage cists associated with a single pit structure. Most of Shabik'-eshchee Village, with numerous houses dating to this period, could not be included in the comparison since association was obscured by intensive con-

struction and remodeling. At Shabik'eshchee, cists may have been reused with structures for which they were not originally intended.

In the middle to late 700s through early 900s construction, with few exceptions, two aboveground room suites (generally including four storage rooms) are associated with one pit structure; this pattern occurs in four or five sites. Individual suites most commonly consist of two oval-shaped storage rooms associated with ramada areas of equivalent length. Ramadas are usually wider than the storage rooms with which they were associated. Several units of three-storage rooms were also noted in association with ramada areas.

In comparing suite size of the late 700s/800s with that of other periods, it is difficult to decide if or how to include ramada areas. If they are considered equivalent to other rooms, strictly for purposes of space comparisons, it has been proposed that in a suite of two storage rooms the associated ramada could be viewed as equivalent to two living rooms, since this is the form that ultimately replaces them. In subsequent time periods, the living area (enclosed ramada) associated with and adjacent to paired storage rooms is subdivided into two living rooms, but continues to be linked by a connecting doorway. If ramada areas are considered rooms, one pit structure would have been associated with an equivalent of eight rooms in subsequent construction, or a total of four storage rooms, excluding the ramada. Two aboveground room units are most commonly associated with a single pit structure in the 800s. Despite this subdivision of aboveground rooms, it is unclear whether a single extended family continued to utilize a single pit structure, or the number of families using one pit structure actually doubled by the A.D. 800s. It seems very likely that extended families merely expanded their use of the aboveground space, thus increasing both seasonal living and storage space.

Too few sites from the middle 900s through the middle 1000s period have been fully excavated to allow generalization about room to pit structure ratios. Of the three examples available, the number of walled rooms associated with a single pit structure ranges from three to nine with a mean of between four and six rooms depending on whether minimum or maximum estimates are used. The limitations imposed by the sample are unfortunate since it would be of interest to examine the relationship between consistency in suite size and organizational standardization through this time of transition. Aboveground living rooms become fully walled, and by the end of this period, pit structure floor features for the most part disappear. Although there is little consistency in room to pit structure ratios, in all three examples, two to three households are associated with single pit structures.

Despite a large number of excavated sites, of the late 1000s through middle 1100s period, little is known about direct association. The site ratios were calculated by dividing the total number of rooms by the total number of pit structures. In some cases, enough is known about construction sequences and episodes to make the results of this procedure meaningful, though in others, room abandonment and construction phases are poorly understood. These calculations yielded a mean number of six rooms per

suite ($sd=2.9$, $n=12$) within a range of two to ten rooms per pit structure. It was noted that core-and-veneer construction episodes at Bc 236 and Lizard House have ten and nine rooms respectively per pit structure. Simple and compound masonry sites Bc 52 and Bc 362 average between eight and nine rooms per pit structure. Associational information at Bc 52 is questionable and this figure could easily be nonsense. Bc 51 averages between seven and eight rooms per suite, which also may be a product of our understanding of site use. Even if pit structure interstitial spaces are disregarded, Bc 51 has 40 to 45 rooms, somewhat more than the maximum small site size previously suggested. If open doorways are counted, 17 rooms remained open at the site's last use. Twelve rooms without doorways remain for which no information is available.

Hayes (1981:60) obtains a ratio of 6.5 rooms to 1 kiva for 154 "Hosta Butte Phase" sites encountered in site survey. He suspects that surface indications reflect low pit structure frequencies and suggest that expected ratios for Anasazi sites are 12 to 15 rooms per kiva; however, his original figure is similar to that indicated from excavated data.

In comparing room to pit structure ratios between town and small sites, Hayes (1981:60) finds that between 20 and 30 rooms in towns, three to five times as many as in small Chacoan houses, are associated with a single pit structure. Large site room frequencies per pit structure are at least double and probably triple those encountered in the two core-and-veneer masonry small houses that have been excavated.

As noted, there are too little data to present any information about late 1100s through 1200s room arrangements, room to pit structure ratios, or organizational patterns.

Allocations of Space

Aboveground rooms containing (minimally) a single slab and/or an adobe-lined firepit 15 cm or more in depth have been grouped in the living/work area category in the preceding discussion. The problems with this assumption have already been considered, although three of the more major difficulties warrant reiteration.

The first arises when functional comparisons are drawn between aboveground rooms with single firepits and post-1000 pit structures, which often contain a single large firepit. Post-1000 pit structures evidence a sharp reduction in the numbers and types of other associated floor features; their sustained intensive use as living/work areas is suspect, in spite of the continued presence of hearths within these structures in the early 1100s. One might suggest that if post-1000 pit structures are not included in living/work space then, similarly, aboveground rooms with only one hearth should not be included. The fact that different standards have been applied to pit structures and aboveground rooms may not seem immediately defensible. One must examine the development of these structures and the

features they contain. The abrupt shift in the intensity of use of pit structures, as indicated by floor features, contrasts with aboveground rooms that evidence more gradual change, even considering the adaption and ultimate concentrated use of ramada areas.

Another problem is that the recording of the floor features of many of the excavated sites, most of which date between the late 1000s and middle 1100s, has been noticeably erratic. The uncertainty as to whether there were no floor features or whether they were simply not located, makes it impossible to equate apparently featureless rooms with storage activities. In the few cases where floor features were thought to have been reliably recorded in late 1000s/middle 1100s houses, room position within roomblocks is a less accurate indicator of use than in previous periods due to the increased variability in site layouts.

A third problem is that of determining exactly how much space was allocated for living/work areas in room suites. A decision is complicated by the appearance of communal grinding rooms after the late 900s, which may have been utilized by occupants of more than one suite or, in fact, the entire site. The communal nature of the grinding rooms makes it difficult to determine the amount of space that should be specifically allotted to each household. The occurrence of unbounded ramada areas used for living space during the late 700s through early 900s, but which in some cases cannot be specifically associated with room suites or storage units, presents a similar problem. With some exceptions, sites in this category can only be considered as a whole when the use of space is examined, since room suite spatial allocation is not readily apparent.

A discussion of ceremonial rooms is not included since little information is available.

Structure Size

Table 2.37 summarizes mean floor areas for storage and living/work areas through time. Specific site associations are not considered. Pit structures are included in a separate category since their function after the early 1000s is unclear.

Aboveground room associations with either living/work or storage activities evidence an increase in room size through time from the 500s to the early 1000s. Rooms containing firepits continue to increase in size through the middle 1100s and are accompanied by a slightly greater size variability. Although there seems to be an increase in the size range of aboveground living rooms, this variability is more noticeably attributable to differences between sites than within them. Some small sites contain significantly larger rooms than other contemporary examples, a difference more striking than in previous periods.

Table 2.37. Mean floor area of rooms by general functional class.

| <u>Time Period</u> | <u>n</u> | <u>Mean Floor Area (m²)</u> | <u>sd</u> | <u>cv (%)</u> |
|--|--|--|-----------|---------------|
| <u>500s-early 700s</u> | | | | |
| 1) Storage | 46 | 2.56 | 1.18 | 46.08 |
| 2) Living | (no aboveground examples where extent known) | | | |
| 3) Pit structures | 23 | 16.04 (below bench) | 7.76 | 48.41 |
| <u>Mid/late 700s-early 900</u> | | | | |
| 1) Storage | 27 | 2.94 (below bench) | | |
| 2) Ramadas (living) | | | | |
| all | 11 | 15.25 (without 29SJ | 5.30 | 34.82 |
| bounded only | 10 | 15.62 629) | | |
| 3) Pit structures | 19 | 14.88 | 5.67 | 38.10 |
| <u>Mid 900s- mid 1000s</u> | | | | |
| 1) Storage (rear) | 15 | 5.10 | 1.32 | 25.88 |
| 2) Living | 17 | 6.92 | 2.36 | 34.10 |
| 3) Pit structures | 9 | 11.85 | 2.22 | 18.73 |
| <u>Mid 1000s only (third construction episode of 29SJ627 only)</u> | | | | |
| 1) Storage | 4 | 5.53 | 0.36 | 6.51 |
| 2) Living | 8 | 5.61 | 2.60 | 46.35 |
| 3) Pit Structures | 2 | | | |
| <u>Late 1000s-mid 1100s</u> | | | | |
| 1) Rear (6 sites) | 35 | 6.79 | 2.57 | 37.95 |
| (without firepits, | | | | |
| not clearly storage) | | | | |
| 2) Rooms with firepits | 48 | 7.52 | 3.20 | 42.53 |
| 3) Pit structures | 41 | 12.09 | 4.00 | 33.08 |

In general, aboveground living/work areas are larger than those of storage rooms. The slightly greater similarity between the size of room types noted from the middle 900s through the middle 1000s is due to a greater variability in living room size both within and between sites. The similarity may be related to adjustments made after the full enclosure of living rooms in the early 1000s.

Large/Small Site Comparisons

Many papers prepared by Chaco Center staff members begin with a similar statement: "In the past, numerous people have emphasized the 'town/village' dichotomy in Chaco, however..." Immediately following will be a paragraph describing the constraints imposed by this emphasis on differences. As the Chaco Center's research progresses, more and more similarities in form, organization, and material culture association become apparent--similarities that argue for local rather than Mexican origins for large Chacoan structures and for a shared cultural tradition between large and small site occupants. Although large and small sites appear quite different formally, there are structures such as Lizard House and Talus Unit, which, while individually classed as belonging to the small and large site groups respectively, assume intermediate positions based on size, form, and construction techniques. The large site attributes that are prevalent in small site construction have been enumerated in the preceding text. The similar layout of small and large sites within Chaco during the early 900s has also been noted. With the acceptance of the high degree of interaction between "large" and "small," there remain several structural differences to consider.

Architectural Characteristics

The differential adoption of architectural characteristics between large and small sites within Chaco has been discussed. Masonry does not dominate wall construction in small site aboveground rooms until the early 1000s, almost 100 years after its appearance in large sites in Chaco. Small site pit structures do not become masonry-lined until the late 1000s or early 1100s, some 150 to 200 years after their large site counterparts. Ramada areas fronting storage rooms do not become fully enclosed living rooms until about 1000. In fact, the entire site adjustment accompanying the "pithouse to kiva" transition does not occur until the early 1000s, at least 100 years later than at the large sites. Elsewhere within the Anasazi region, pit structures become featureless and masonry-lined at roughly the same time as at Chaco (i.e., middle to late 1000s). Some archaeologists have argued that Chacoan small sites developed slowly, a suggestion of little utility in explaining these differences. Prior to this period, even though Chaco was not as extensive a development as the

Pueblo I settlement at Alkali Ridge, for example, one need not conclude that it was experiencing developmental retardation.

Lekson (personal communication 1981) would argue that this apparent slow development in Chacoan small sites may be tied to poor dating techniques, i.e., those relying heavily on ceramic association for temporal placement. This is a point that should be considered carefully. Although the dominance of Red Mesa B/w lasts for about 100 years (middle 900s - early to middle 1000s), featureless pit structures do not appear in small sites before the time in which the frequencies of Gallup B/w are relatively equivalent to those of Red Mesa B/w. Masonry aboveground rooms associated with large sites are dendrodated to the early 900s and are definitely associated with the dominance of Red Mesa B/w. No excavated small sites associated exclusively with Red Mesa B/w (or an earlier type) have masonry-lined featureless pit structures. The latter sample, although small, is extremely consistent.

With the local water scarcity and abundance of readily accessible stone for masonry, it seems unlikely that adobe construction would have been easier to assemble. If the canyon were occupied only seasonally, aboveground ramadas may have been adequate for summer and spring use and the impetus to add full enclosures of masonry to form aboveground rooms less urgent. If small site inhabitants were engaged in large site construction after the early 900s, perhaps they lacked the time for this type of building within their own dwelling. There seems, however, not to have been any decrease in remodeling and new construction within the houses after the early 900s. Even if small site occupants participated in large site construction, they still renovated their own homes on a relatively regular basis. A question remains as to whether this renovation was any less frequent than one might find elsewhere in the Anasazi region. In this respect, the dating of small house renovations is specific in only a few examples.

If such a lag actually exists, the image of "the conservative canyon dweller maintaining his traditions while a Great House is being constructed next door" reemerges. The low-level hierarchy, which Schelberg (1982a, 1982b) proposes was present in the canyon from the Basketmaker III period and which increased in complexity through time, might describe such within-canyon differences. Although Gladwin (1945:65) observes that the shift to aboveground living rooms and the appearance of featureless "kivas" seems to be associated with a dominance of Red Mesa B/w pottery dated earlier than in the small sites in the canyon, adobe continued to be used in aboveground room walls. It may be that the apparent strong tie between the canyon and the area to the south (before the middle 1000s) and the slight stagger in development in the former area were responsible for the preservation of "more traditional" house forms in the canyon. Further examination of pertinent sites is necessary before this suggestion can become a fact. It has also been noted that most of the large site characteristics such as core-and-veneer masonry, pre-laid foundations, multiple stories, and Bonitian style kivas are not encountered in small sites until the early 1100s.

There is a question as to whether small site core-and-veneer masonry more closely resembles the blocky style apparent in early 1100s large sites e.g., Casa Chiquita, Kin Kletso, and New Pueblo Alto, or whether it can be classified as the earlier Classic Bonito phase construction (Types III and IV?). Although not quantified, both types are apparent in small site construction of the early 1100s, but since so few of the known core-and-veneer small sites have been completely excavated (generally only one or two walls have been exposed), it is impossible to resolve this problem. The question of small site core-and-veneer masonry is of importance in assigning a time period to the influence for this type of small site construction. It might be suggested, for instance, that (1) there is no appreciable time lag between the core-and-veneer small site construction and that of the early 1100s towns, and (2) that the former were copies of the latter. Further, these small sites had no direct relationship to the late adoption of the masonry or pit structure style changes. The suggestion that these small sites may be 1100s versions of large sites is worth consideration, since they appear during a construction boom in both large and small (non-core-and-veneer) sites in the canyon. The canyon may have experienced a temporary resurgence during this time in terms of construction--resembling and surpassing that of the early 1000s.

Distribution and Location

Hayes (1981) has described the nature of site distribution and the constraints inherent in using surface data, particularly in comparing the early to the more visible later structures. He concludes that a gradual increase in total canyon population is apparent through the Pueblo II period, followed by a sharp increase during early Pueblo III (middle to late 1000s through middle 1100s), which in turn is followed by a noticeable decline in late Pueblo III (late 1100s through 1200).

Figure 2.18 was prepared from survey card files to show the distribution of Pueblo II and early Pueblo III sites. Only houses of three or more rooms are included. The labor expended in small site construction during the early 1100s in Chaco cannot be calculated accurately since these deposits generally overlay earlier 1000s site material. In the absence of precise quantifiable data, such an illustration warns against revising population estimates downward without taking into account the expansion of small sites during this period. Such an expansion includes the construction or addition of between 200 and 250 small houses, not counting field houses, etc. If as many as 50 core-and-veneer small sites were present within Chaco during the early 1100s, and each consisted of roughly 10 to 15 rooms, these should be considered as an extra 500 or 750 rooms and 50 to 55 kivas--the equivalent of a large town site or perhaps two. This labor expenditure may have been comparable to that of the extensive large Chacoan site construction of this period.

The previous chapters have emphasized the persistent use of certain locations for small site construction within the canyon, e.g., the area

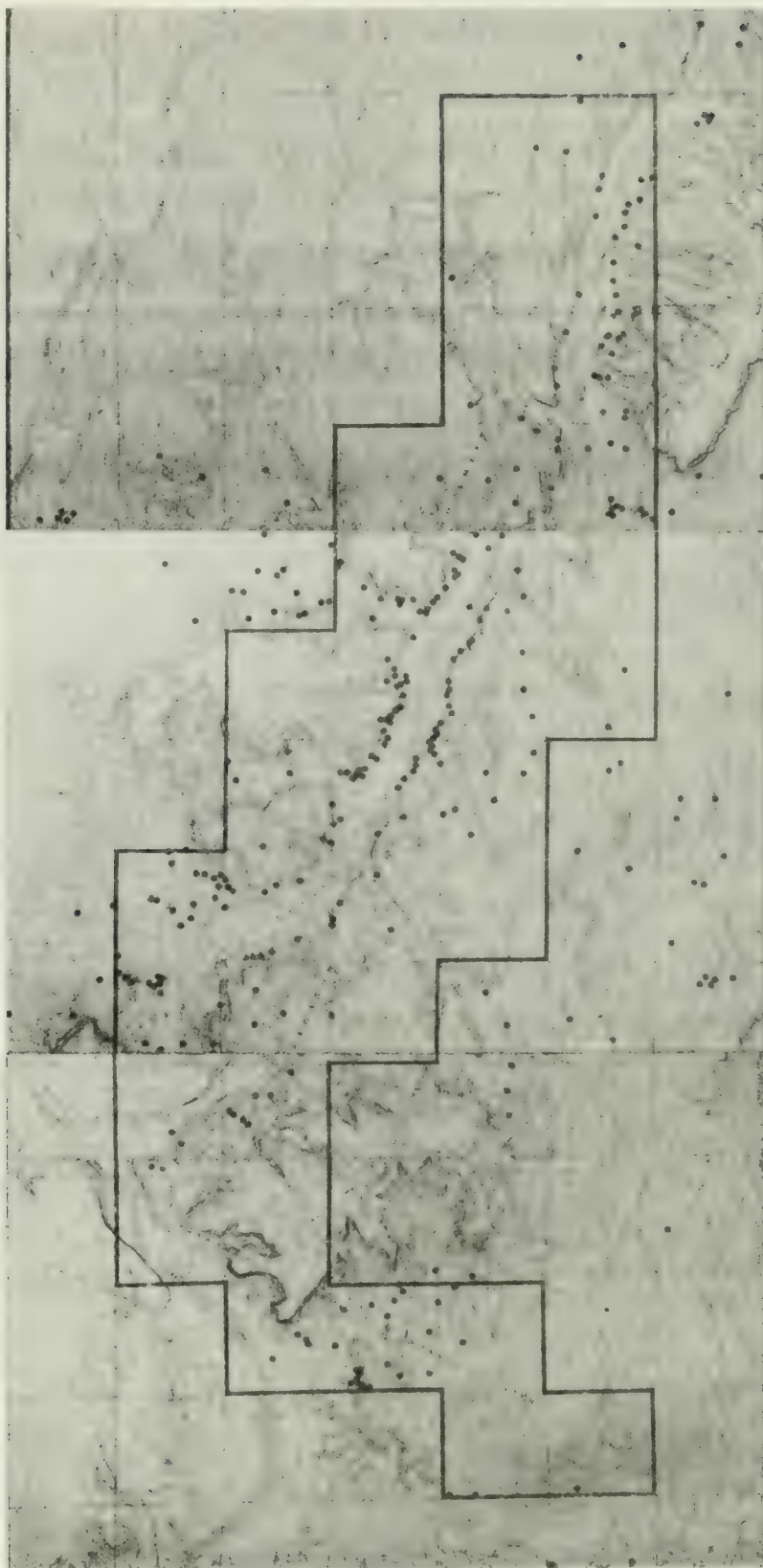


Figure 2.18. Distribution of small sites during Pueblo II and early Pueblo III (houses with more than three rooms).

surrounding Fajada Butte and nearby Marcia's Rincon, the area at the mouth of Werito's Rincon, the mouth of South Gap, and the west end of West Mesa near Padilla Well to the south of Penasco Blanco. A similarly persistent but less extensive development is noted on the opposite side of the canyon from Wijiji. The densest concentration of small houses within the canyon during the early 1100s is in the area surrounding Pueblo Bonito. The back cover of this volume offers a view of these large, mostly unexcavated mounds on the west side of South Gap.

The evidence from excavated sites has argued for persistent reuse (remodeling) of houses in these locations through time. It is apparent that these site clusters are not only present at the mouths of major drainages (Gillespie, personal communication 1981), but are also adjacent to dune deposits, which probably represented the best dry farming locations within the canyon. The variability of moisture, as well as the potential for runoff, a short growing season, soils of high salinity (Gillespie 1983: 279-283; Schelberg 1982a, 1982b:17), and the suggestion that these conditions were similar during the prehistoric occupation of the canyon lead to the conclusion that Chaco was a marginal environment for corn agriculture. The implications, feasibility, and actual mechanics of systems designed to control the availability of water, e.g., irrigation, have been considered by others (Judge et al. 1981; Powers et al. 1983; Schelberg 1982a, 1982b; Toll 1978). The persistent location of small houses next to dry farming areas indicates that local agriculture continued to be attempted. Despite high site density, small houses rarely encroached on dune locations, possibly for reasons other than their potential for agriculture.

There is some indication that the area around Fajada Butte and Marcia's Rincon sustained heavier small site use during "Red Mesa" times than subsequent early 1100s, suggesting strong affiliations with areas south of the canyon. Whereas increased concentrations of small houses during the early 1100s on in the central canyon area may not only indicate population growth but may reflect the increased influence and connection with groups to the west and north.

Although small sites gained more large site characteristics through time, their development was not subsumed by that of the large sites within Chaco. Further, the fact that small sites may reflect more intense use seems to argue for their differential use, the nature of which is not yet clear.

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Appendix A

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| A.18 | Bc 57 (29SJ397) rooms | 479 |
| A.19 | Bc 58 (29SJ398) rooms | 481 |
| A.20 | Bc 59 (29SJ399) rooms | 484 |
| A.21 | Bc 126 (29SJ838, "Hutch's site") rooms. | 486 |
| A.22 | "Lizard House" (29SJ1912) rooms | 488 |
| A.23 | "Zorro Bradley's site" (Bc 236) rooms | 490 |
| A.24 | "Charlie Voll's site" (Bc 362) rooms. | 492 |
| A.25 | 29SJ633 rooms | 494 |

Legend for Illustrations

| | |
|--|--|
| Pithouse ... Pithouse | Hidden Construction |
| FP ... Firepit | - - - - - Suggested outline |
| FP ... Firepit location unknown | ... Post |
| FP? ... Not sure if really a firepit room | ... Upright slab |
| HP ... Pot Rest | R ... Room |
| PH ... Posthole | P ... Pit (unlabeled pits - function unknown) |
| B ... Bench | TT ... Test Trench |
| DS ... Deflector Slab | BC ... Bell-shaped Cist |
| SR ... Southern Recess | A ... Ash Pit |
| VT ... Vent Tunnel | G ... Graves |
| VS ... Vent Shaft | FL ... Floor |
| PL ... Pilaster | RW ... Retaining Wall |
| SVT ... Subfloor Vent Tunnel | SB ... Storage Bin |
| AC ... Ante Chamber | F ... Feature |
| WW ... Wing Wall | SS ... Sandstone Slab |
| S ... Sipapu | T ... ? |
| PW ... Passage Way | RH ... Rodent hole |
| LR ... Ladder Rest | |
| N ... Niche | |
| MXB ... Mixing Basin | |
| SC ... Storage Cist | |
| MB ... Mealing Bin | |

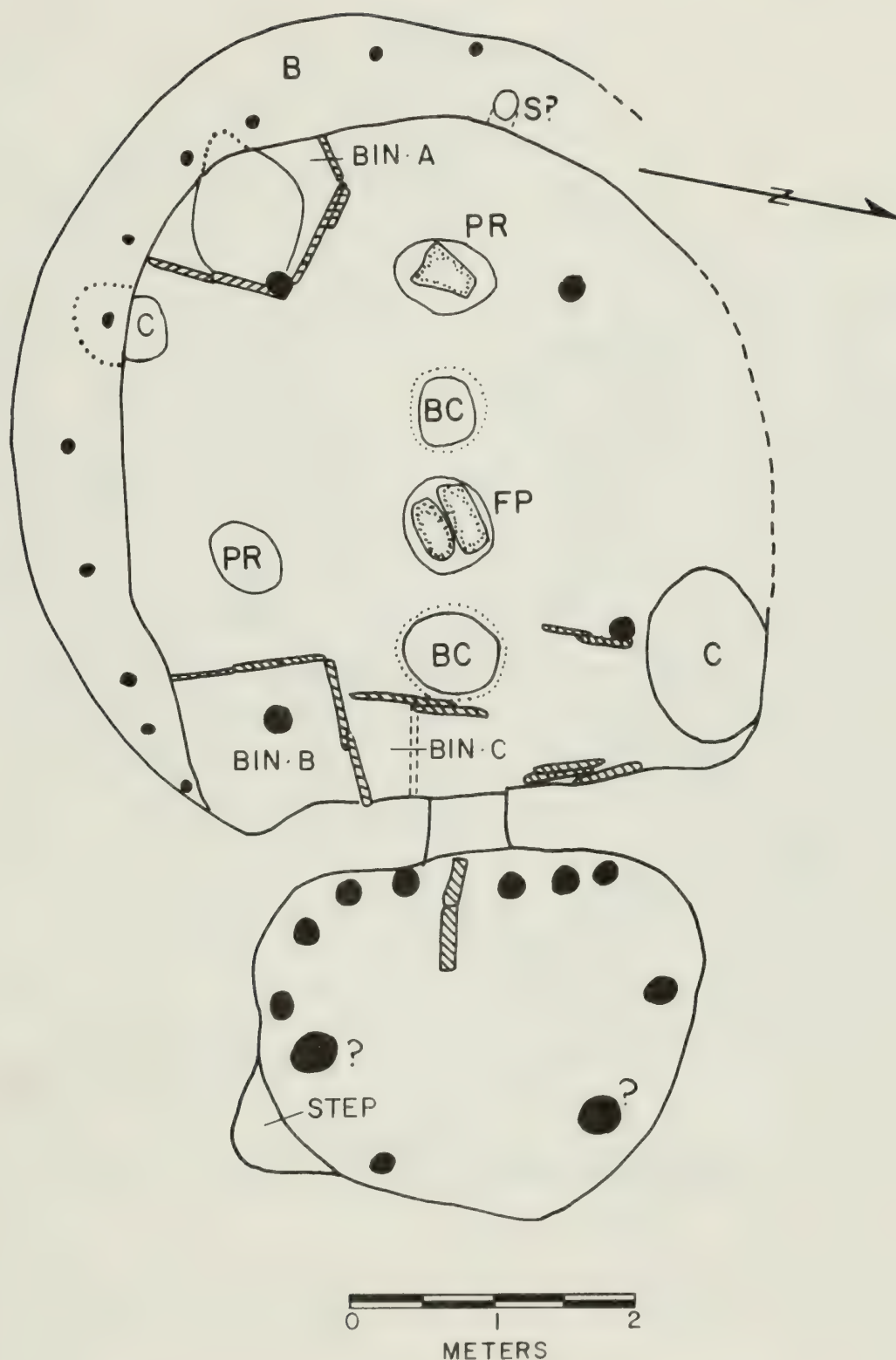


Figure A.1. Site 29SJ 299, Pithouse A (after Loose 1979).

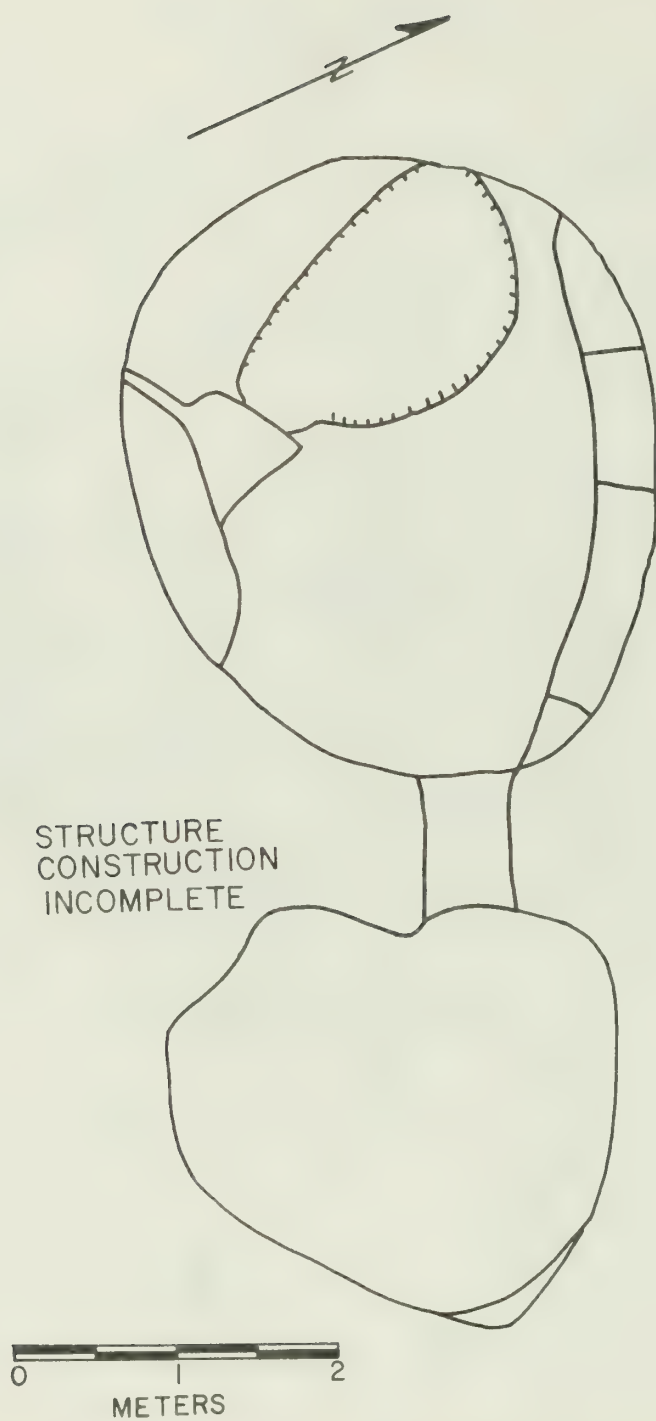


Figure A.2. Site 29SJ 299, Pithouse C (unfinished) (after Loose 1979).

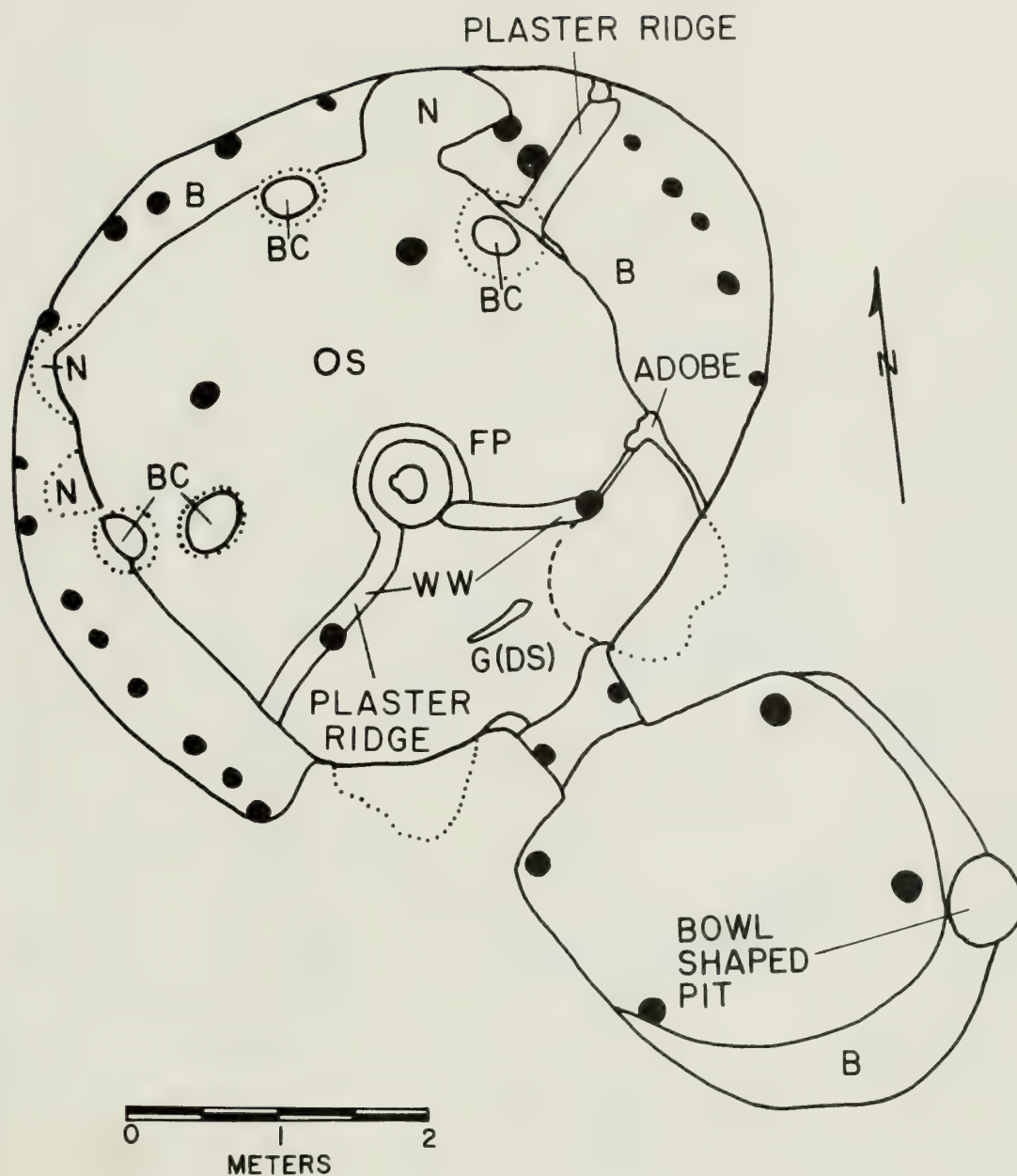


Figure A.3. Site 29SJ 299, Pithouse D (after Loose 1979).



Figure A.4. Site 29SJ 423, Pithouse B (after Windes 1975a).

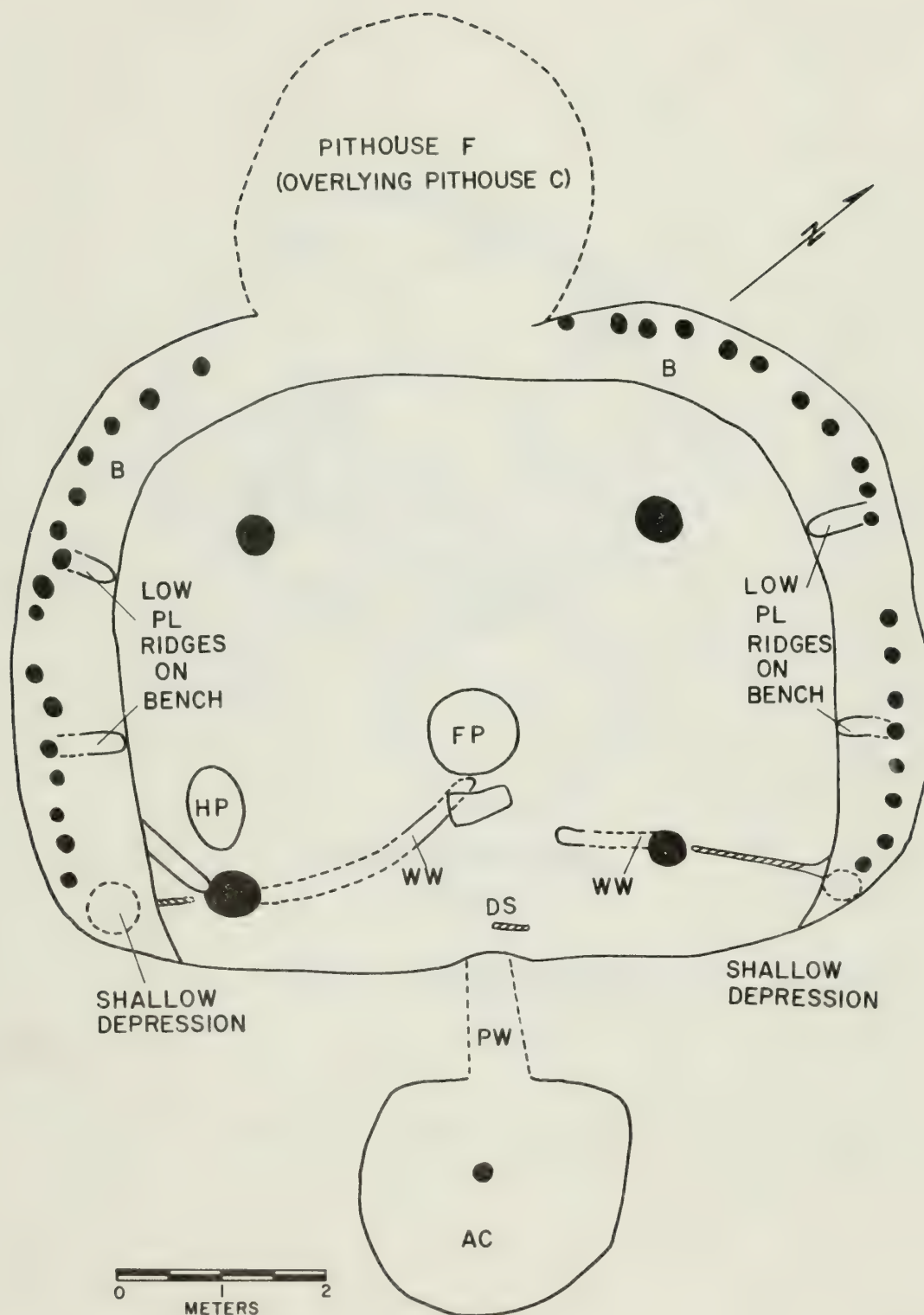


Figure A.5. Site 29SJ 628, Pithouse C (after Truell 1976).

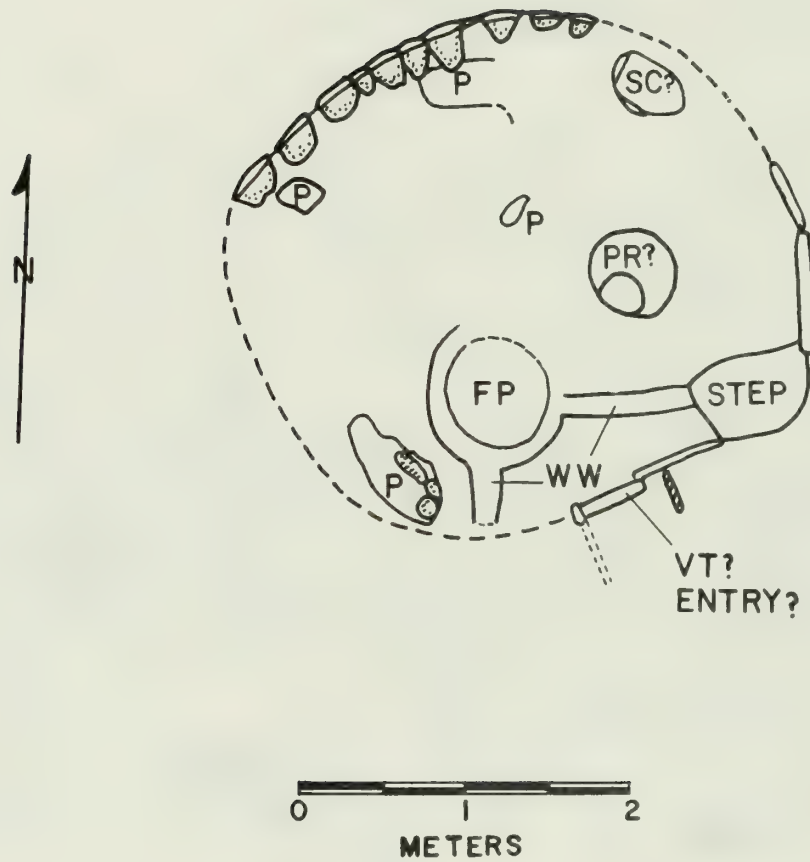


Figure A.6. Site 29SJ 721, Pithouse C (after Windes 1975b).

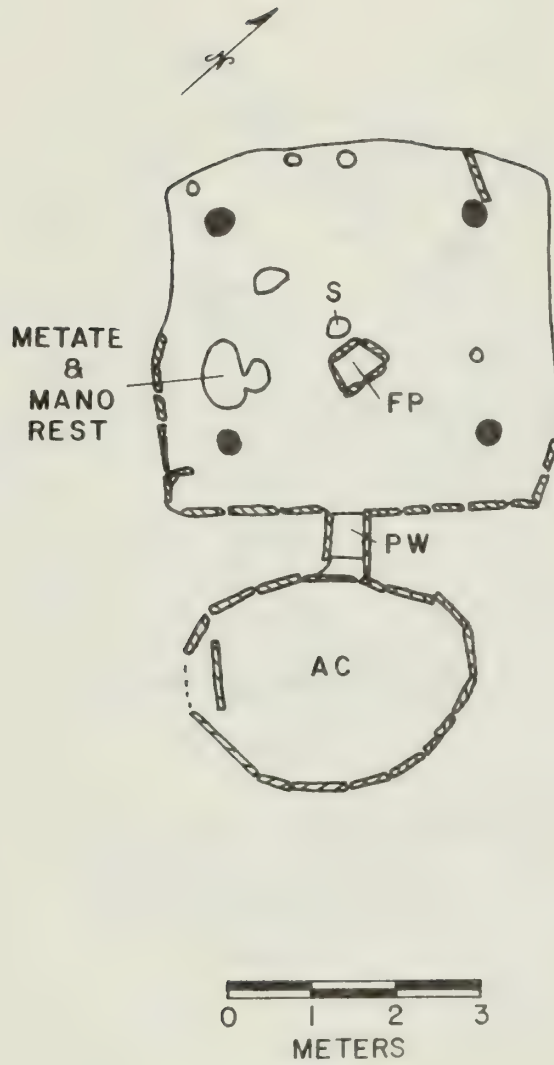


Figure A.7. Shabik'eshchee Village, House A (after Roberts 1929).

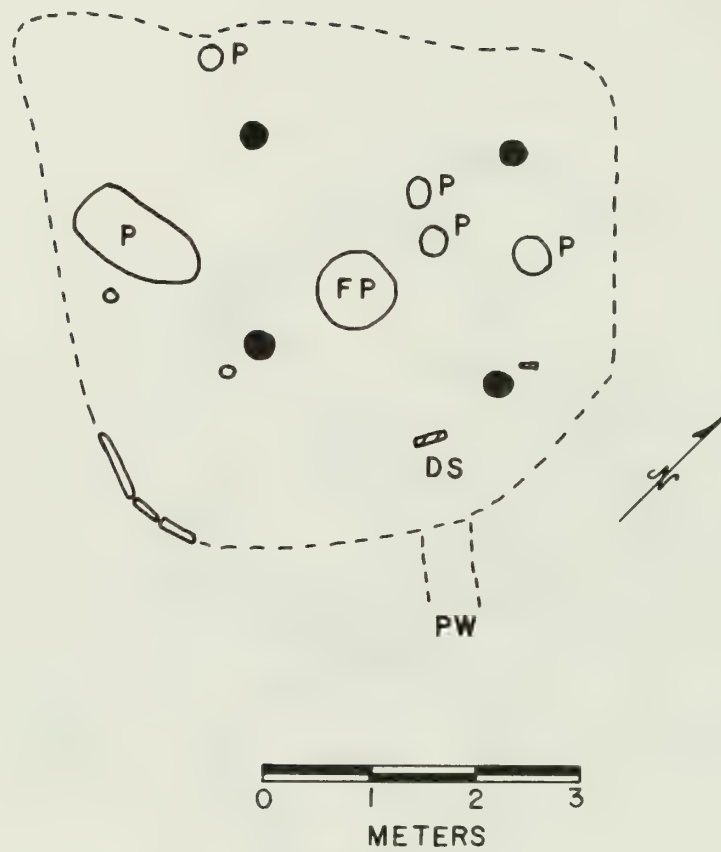


Figure A.8. Shabik'eshchee Village, House B (after Roberts 1929).

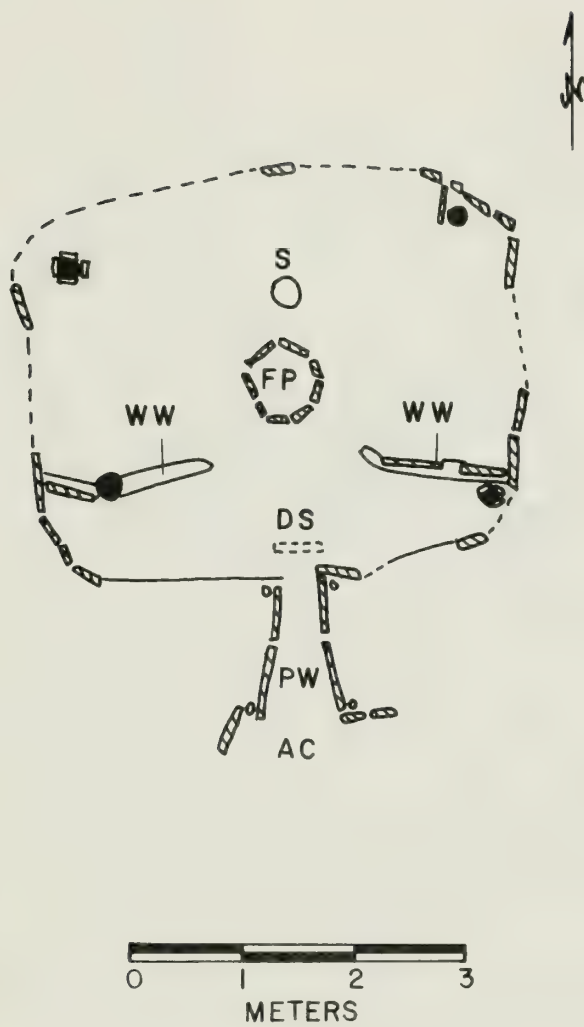


Figure A.9. Shabik'eshchee Village, House D (after Roberts 1929).

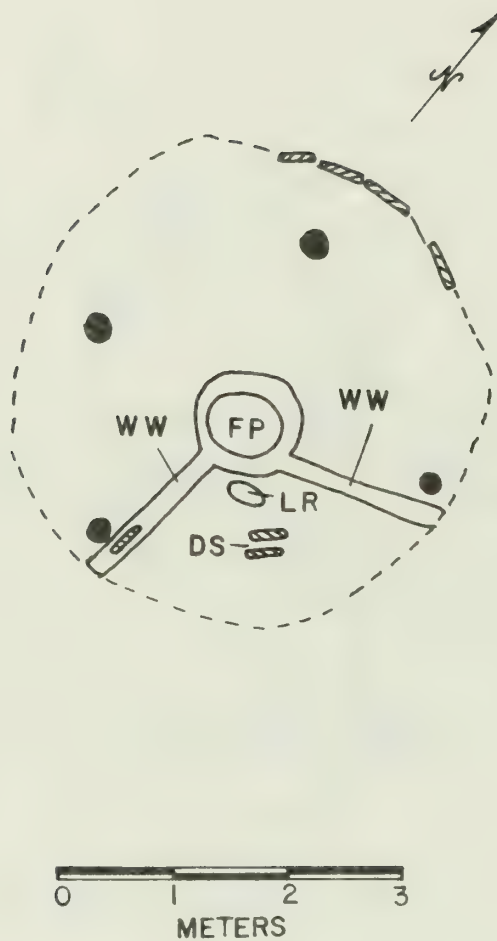


Figure A.10. Shabik'eshchee Village, House E (after Roberts 1929).



Figure A.11. Shabik'eshchee Village, House F (after Roberts 1929).

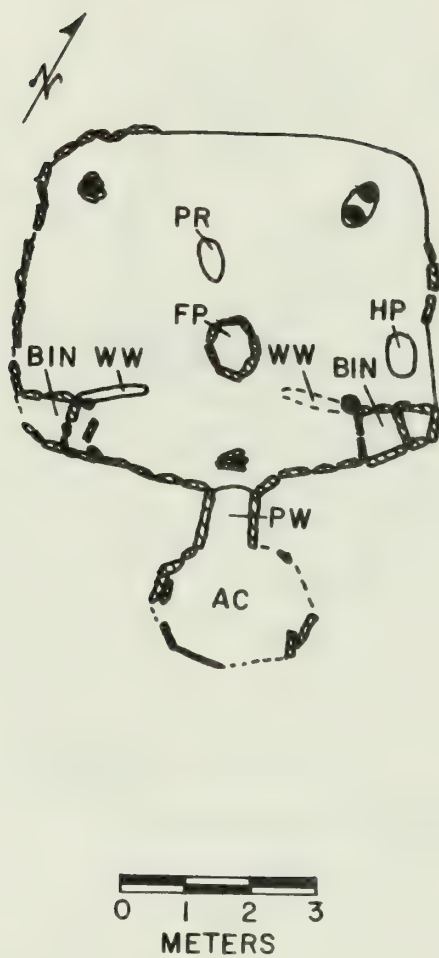


Figure A.12. Shabik'eshchee Village, House F-1 (after Roberts 1929).

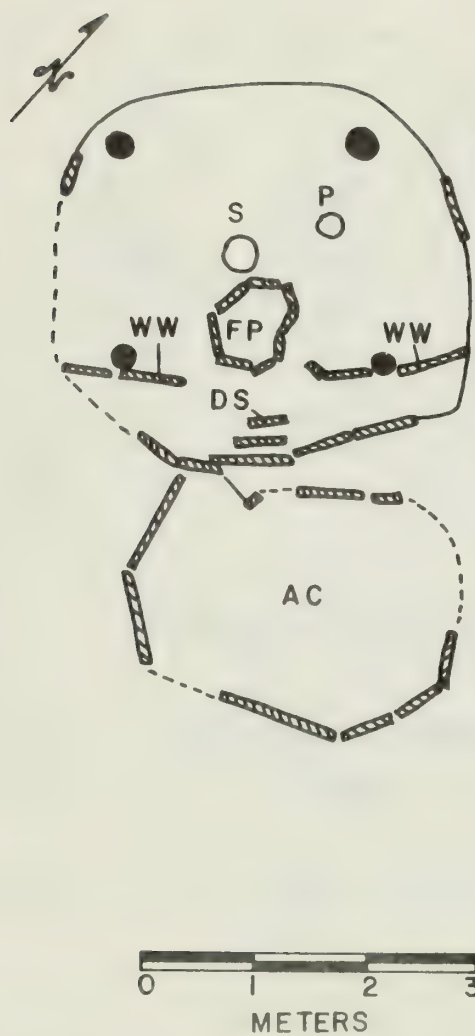


Figure A.13. Shabik'eshchee Village, House G (after Roberts 1929).

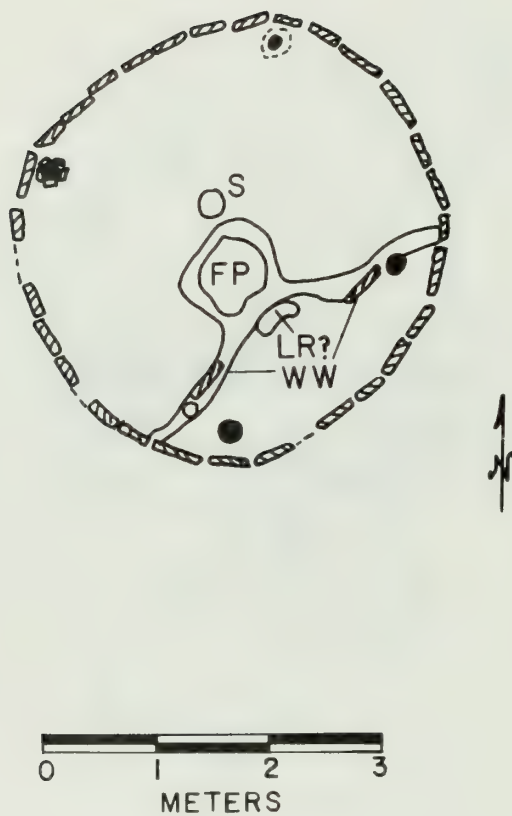


Figure A.14. Shabik'eshchee Village, House H (after Roberts 1929).

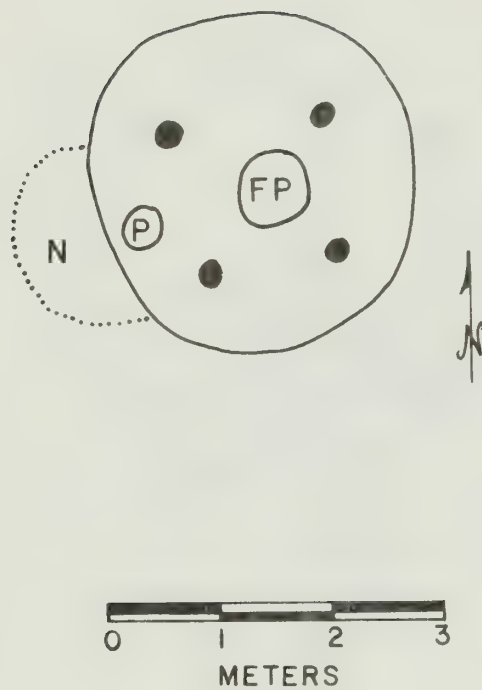


Figure A.15. Shabik'eshchee Village, House I (after Roberts 1929).

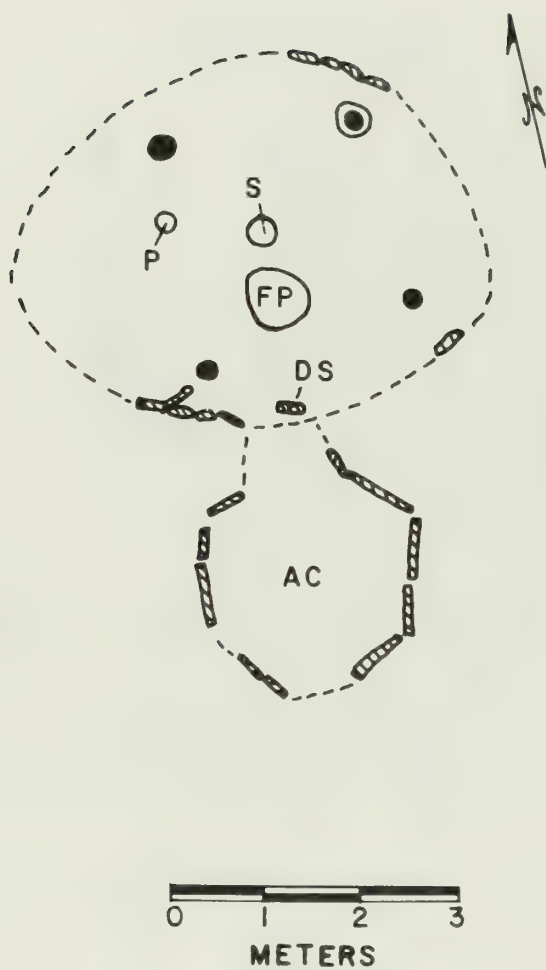


Figure A.16. Shabik'eshchee Village, House K (after Roberts 1929).

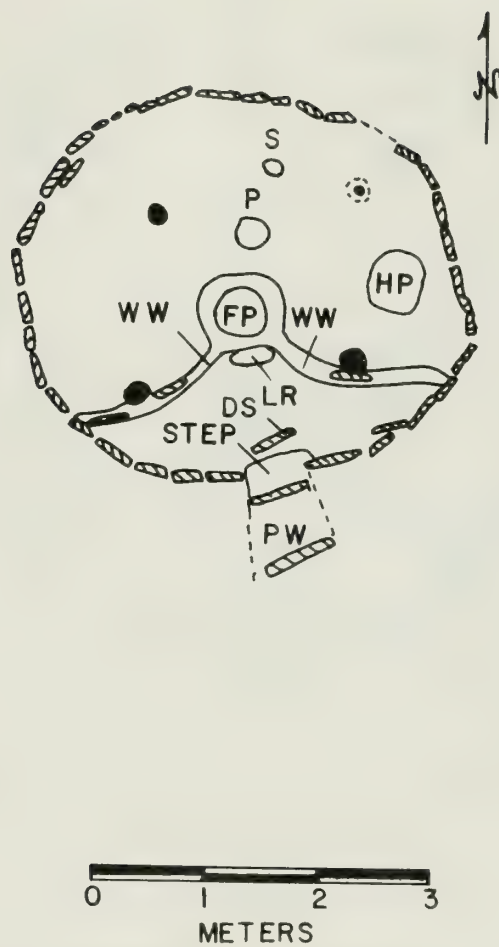


Figure A.17. Shabik'eshchee Village, House L (after Roberts 1929).

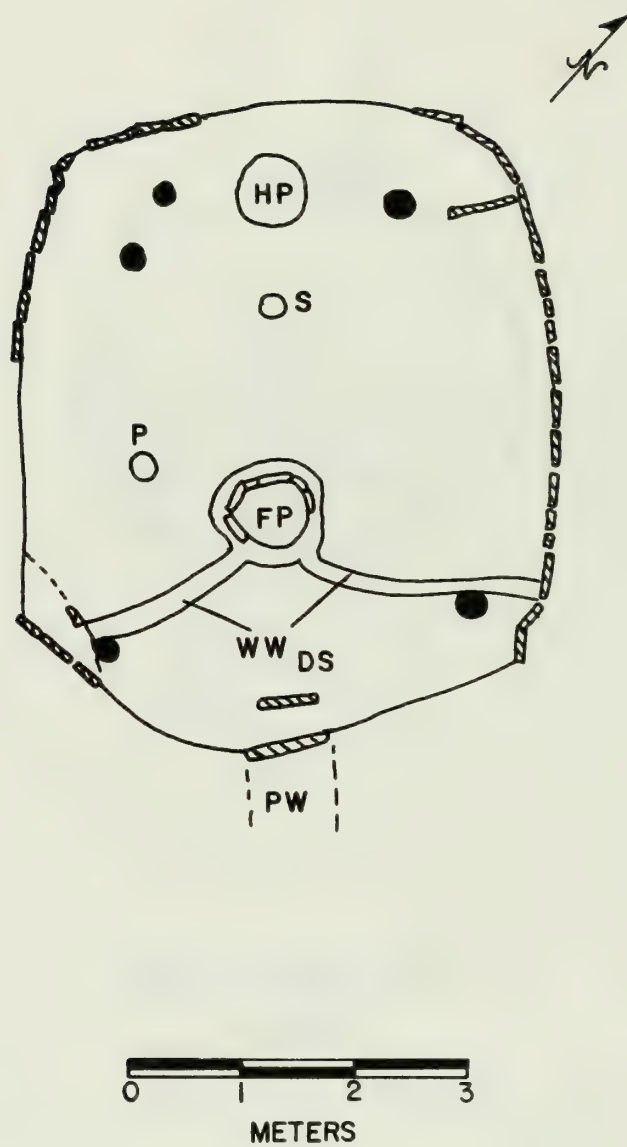


Figure A.18. Shabik'eshchee Village, House M (after Roberts 1929).

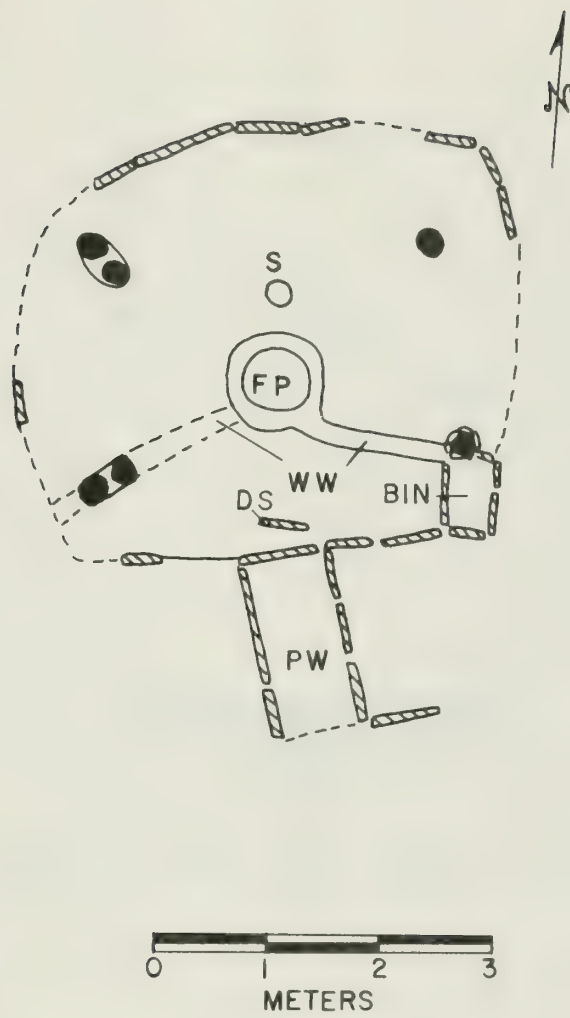


Figure A.19. Shabik'eshchee Village, House N (after Roberts 1929).

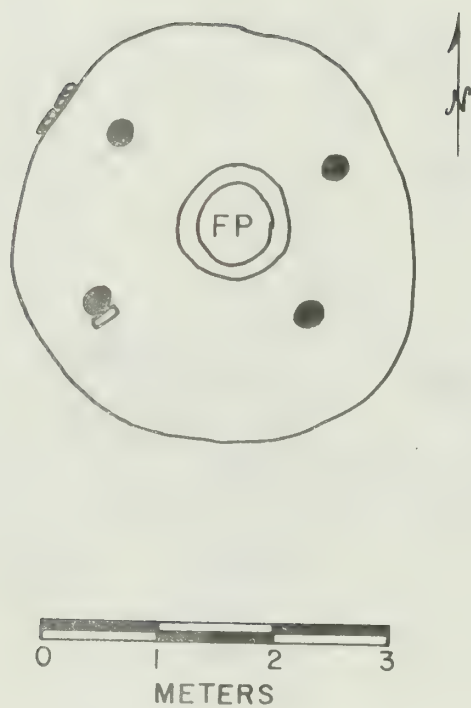


Figure A.20. Shabik'eshchee Village, House 0 (after Roberts 1929).

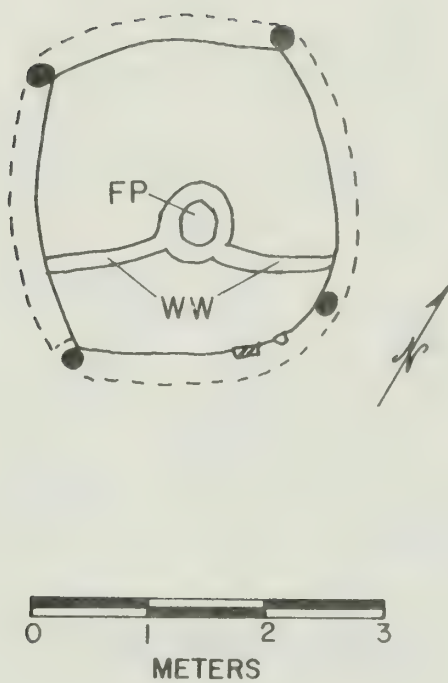


Figure A.21. Shabik'eshchee Village, House P (after Roberts 1929).

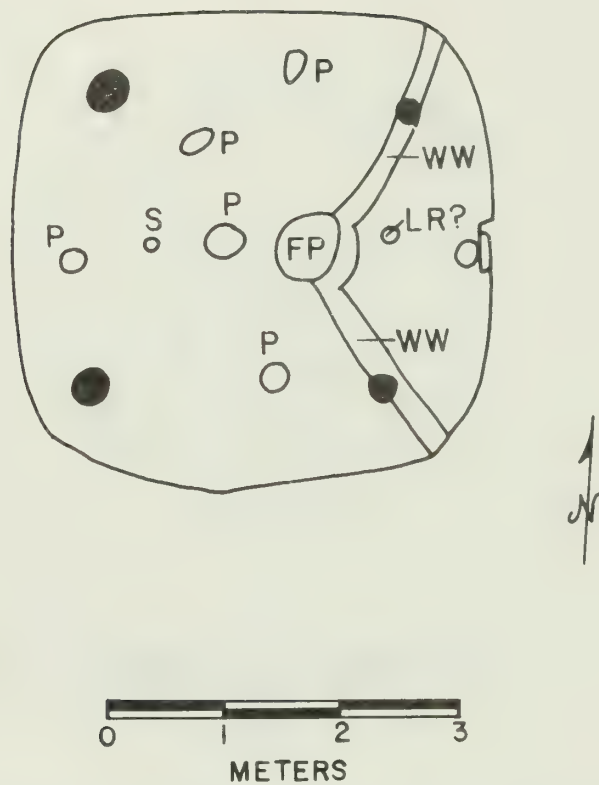


Figure A.22. Shabik'eshchee Village, House Q (after Roberts 1929).

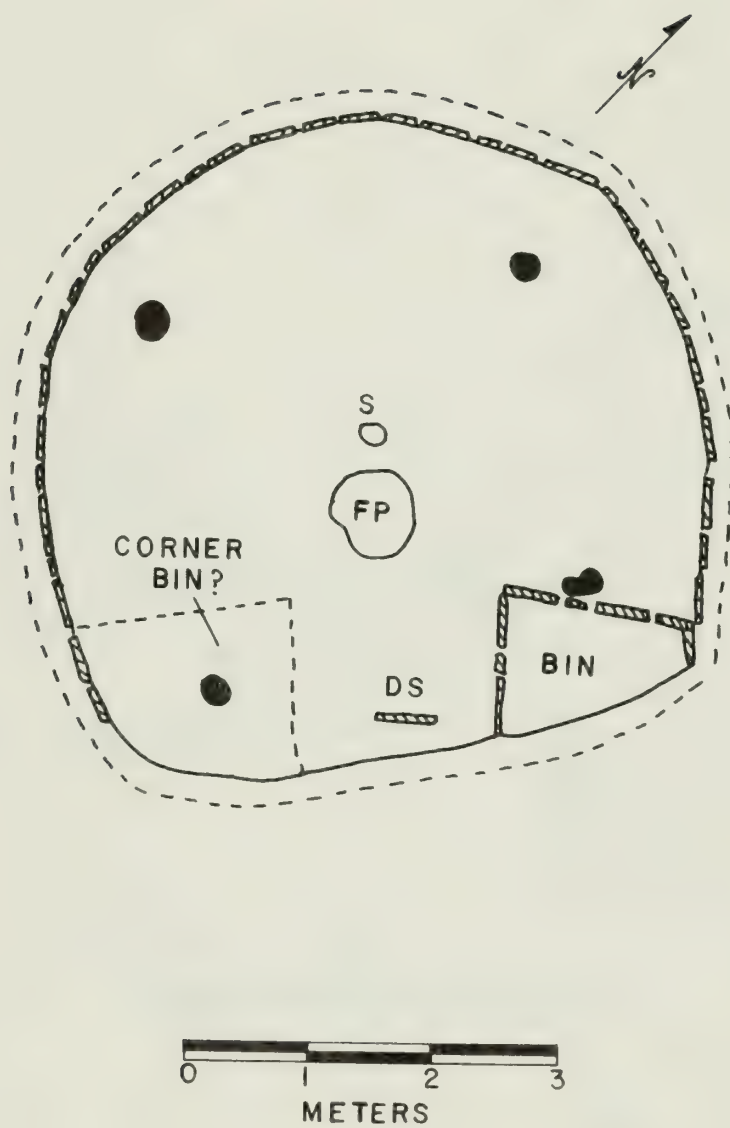


Figure A.23. Shabik'eshchee Village, House X (after Roberts 1929).

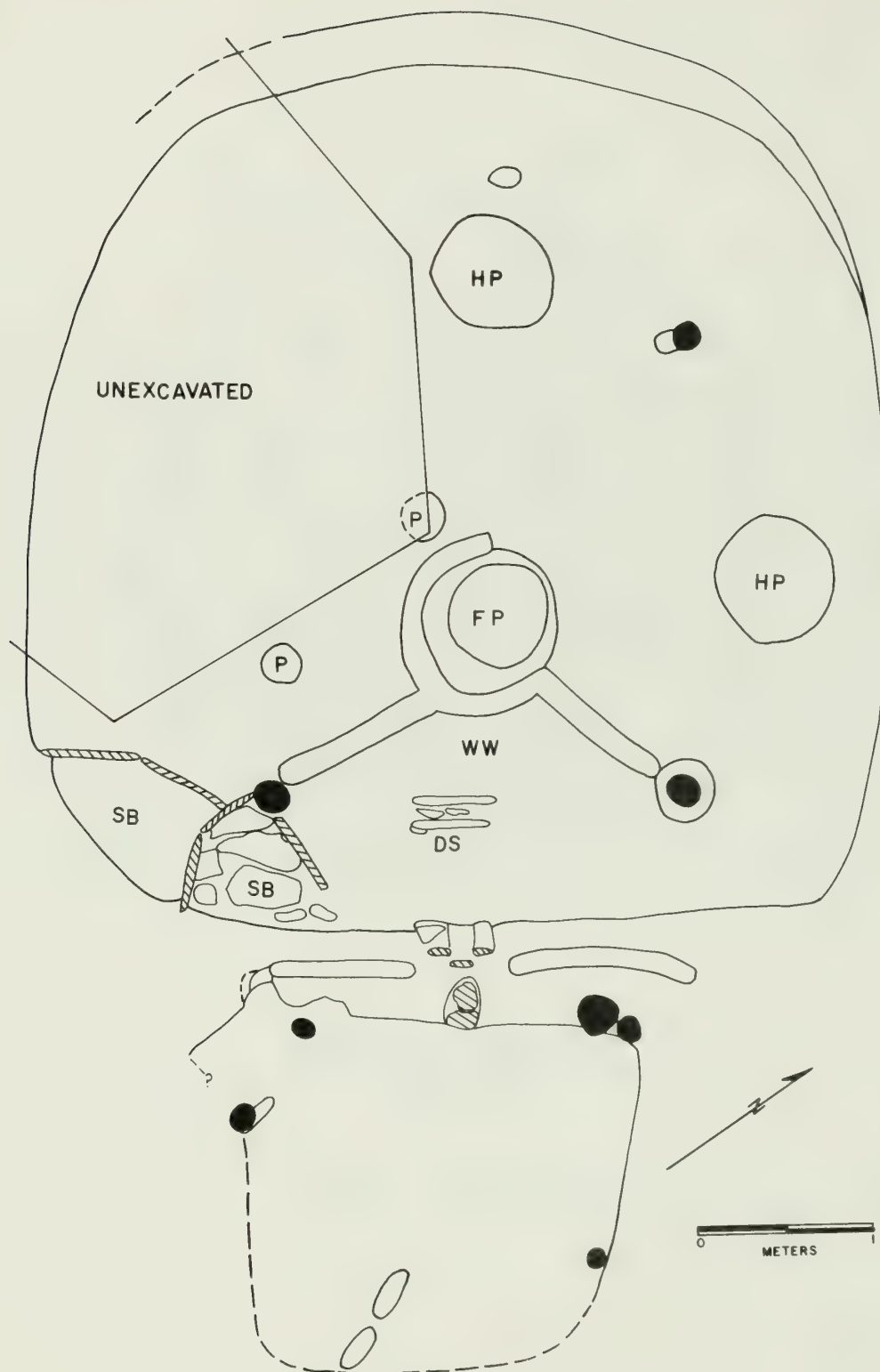


Figure A.24. Shabik'eshchee Village, Pithouse Y (after Hayes and Thrift 1973).

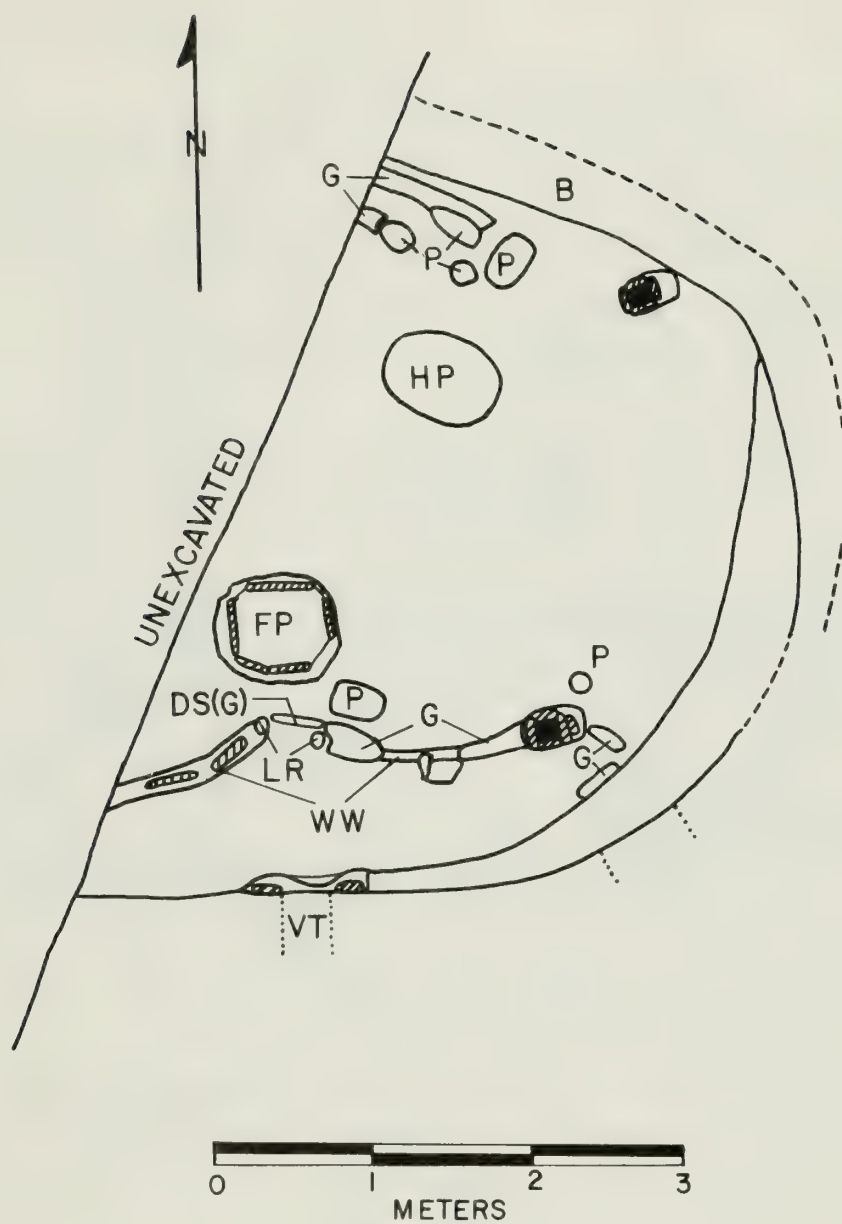


Figure A.25. Site 29SJ 299, Pithouse E (after Windes 1976a).

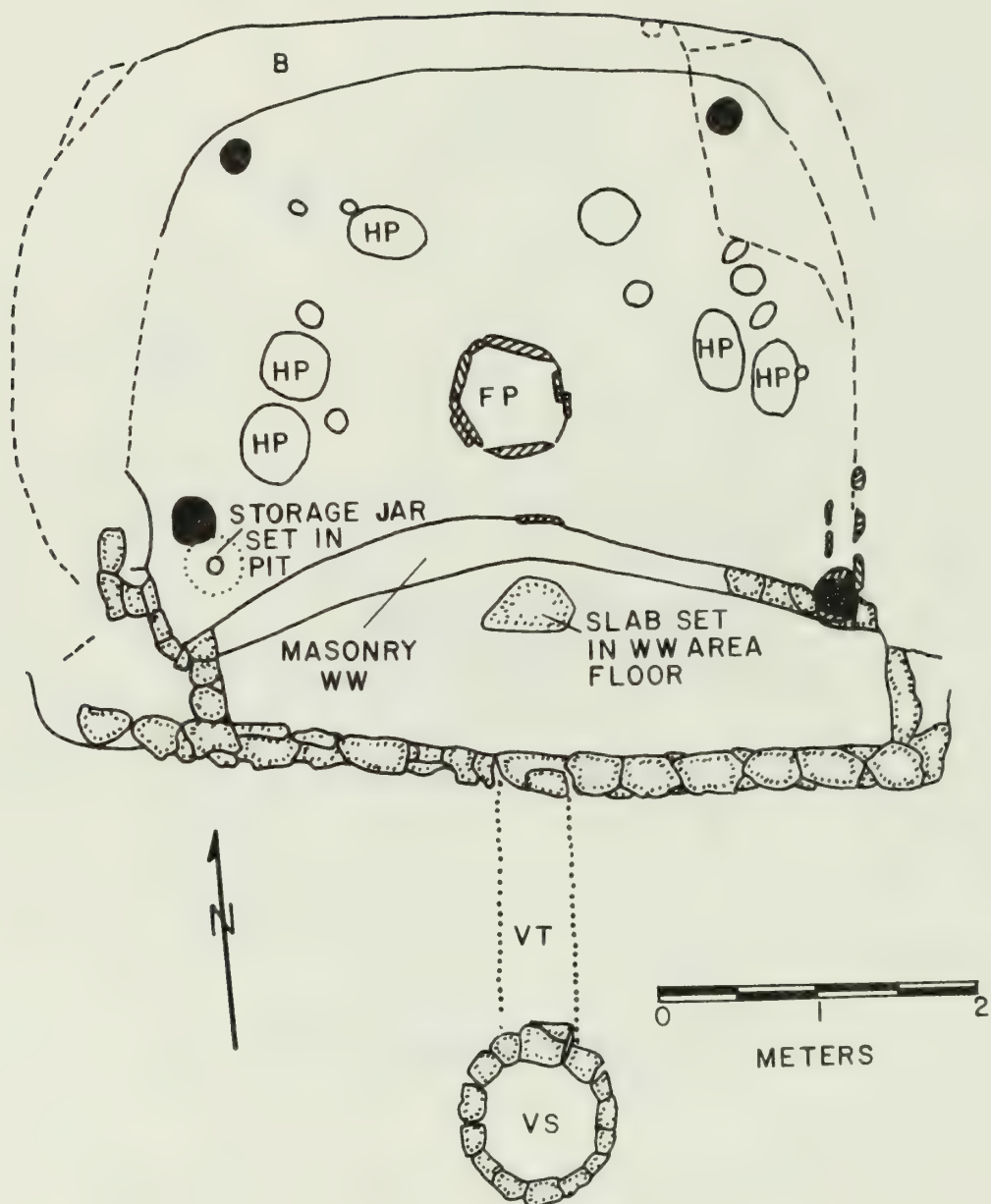


Figure A.26. Site 29SJ 627, Pithouse C (after Truell 1981).

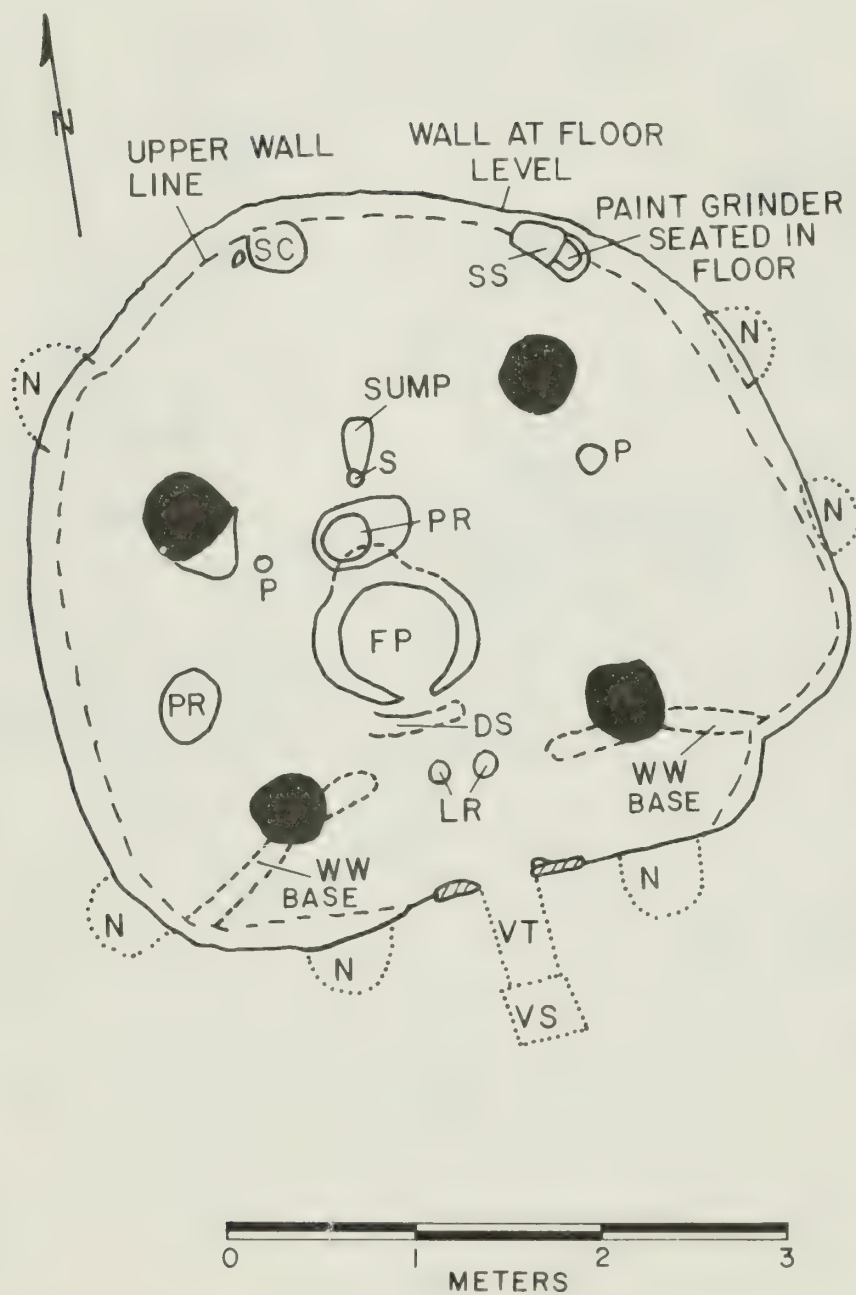


Figure A.27. Site 29SJ 628, Pithouse A (after Truell 1976).

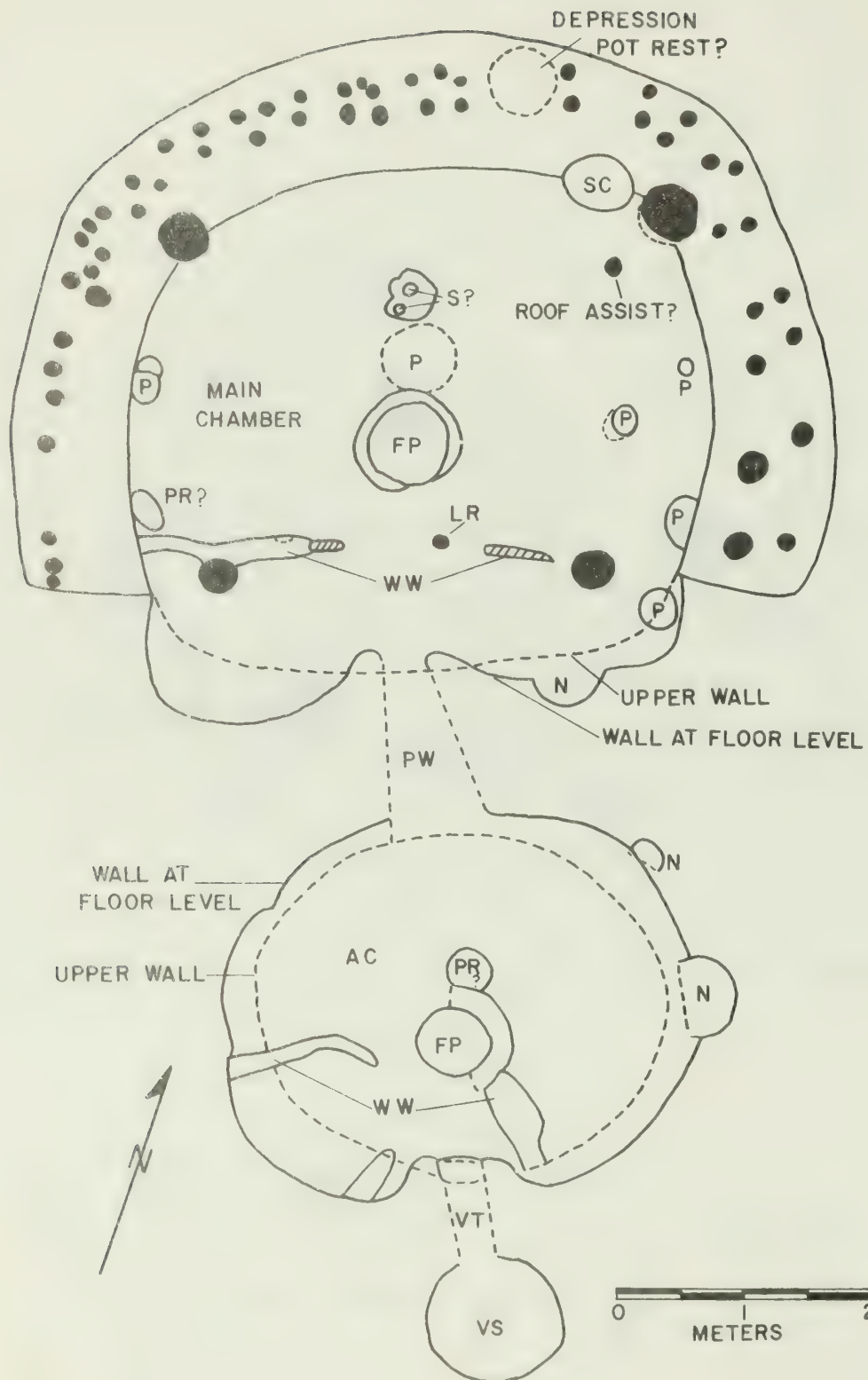


Figure A.28. Site 29SJ 628, Pithouse D (after Truell 1976).

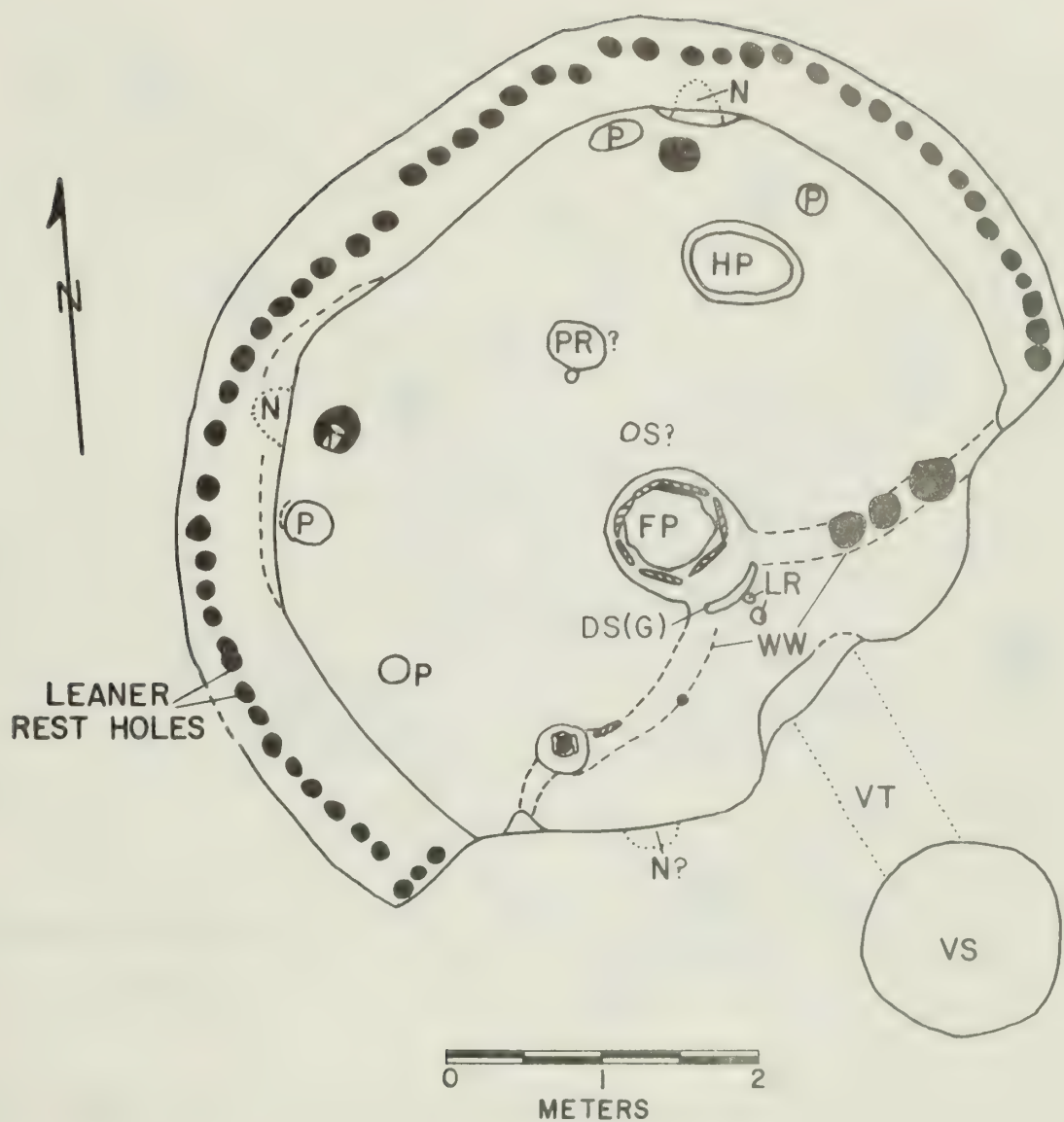


Figure A.29. Site 29SJ 628, Pithouse E (after Truell 1976).

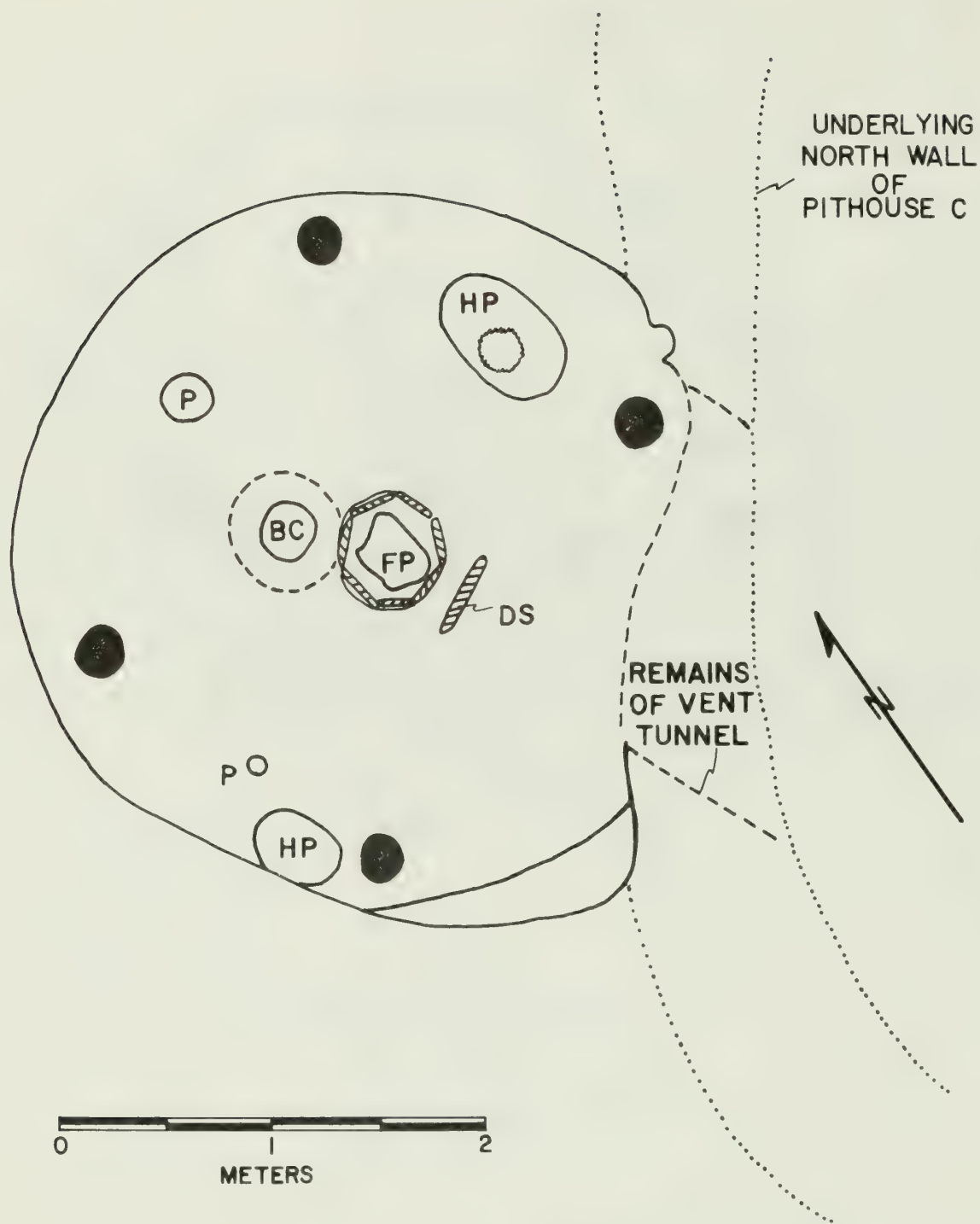


Figure A.30. Site 29SJ 628, Pithouse F (after Truell 1976).

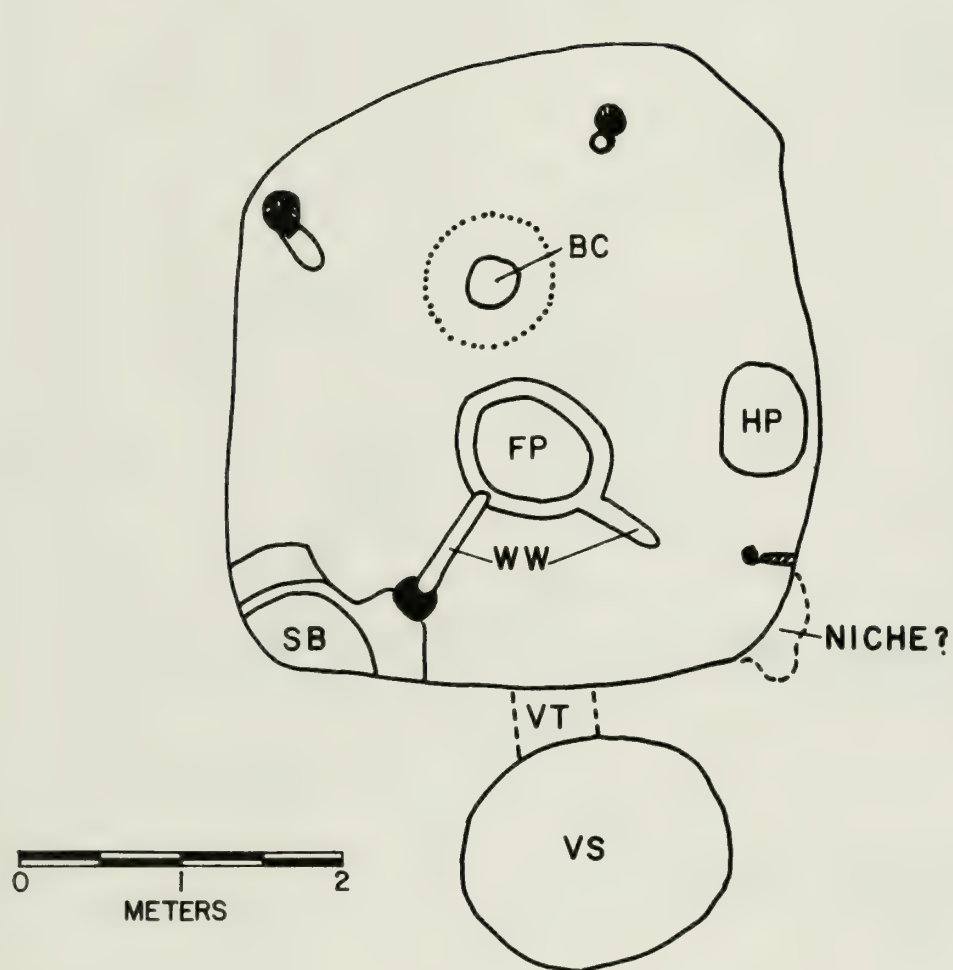


Figure A.31. Site 29SJ 628, Pithouse G (after Trueell 1976).

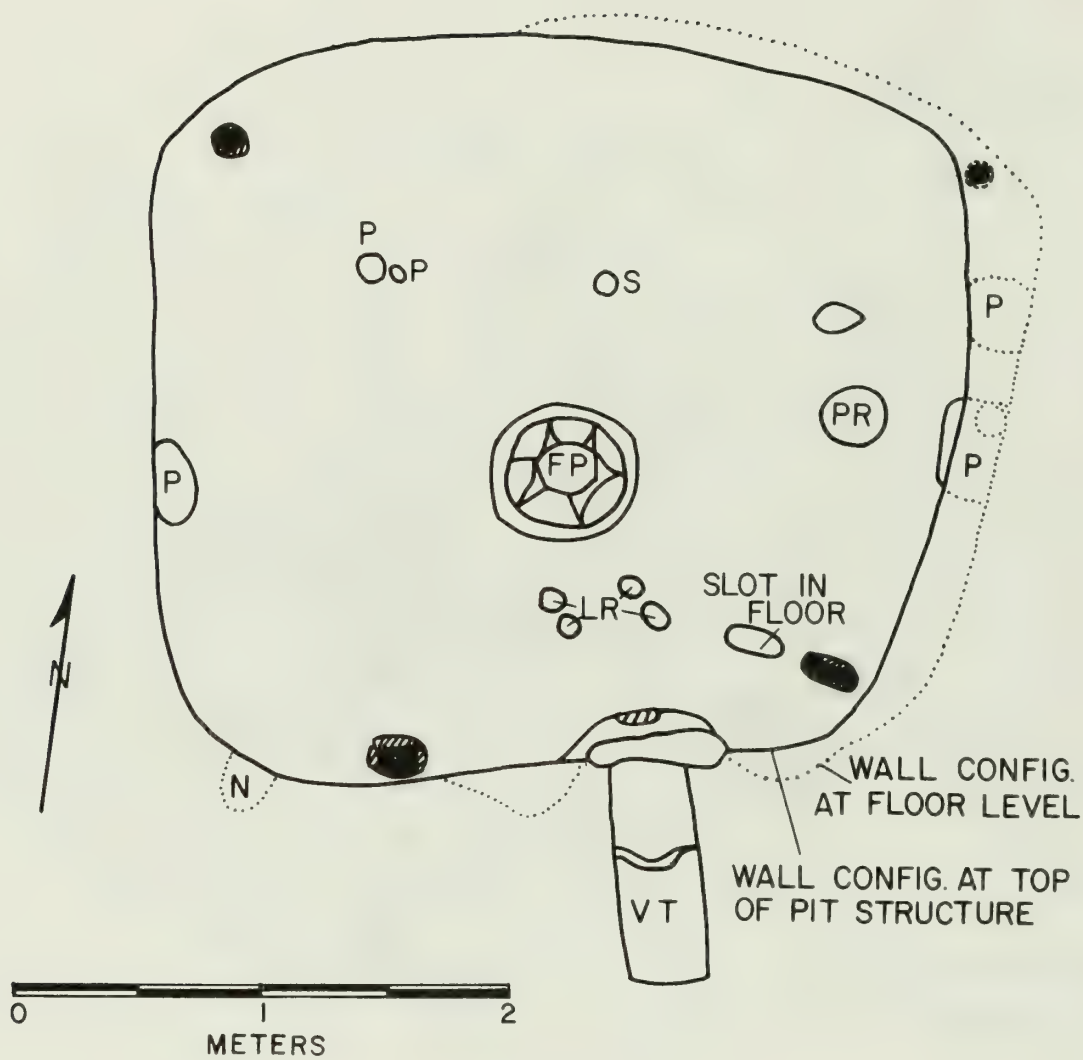


Figure A.32. Site 29SJ 721, Pithouse A (after Windes 1975b).

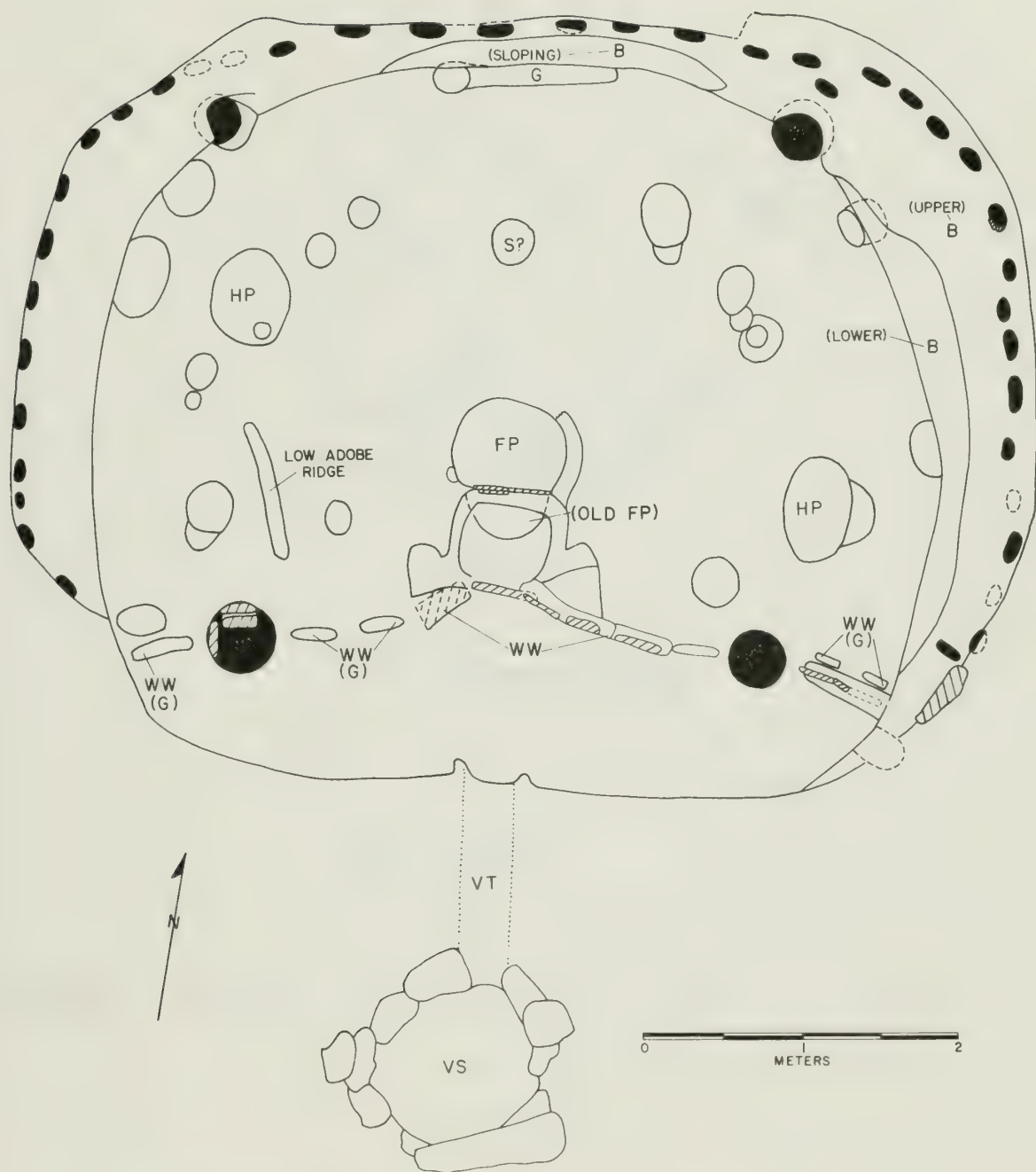


Figure A.33. Site 29SJ 724, Pithouse A (after Windes 1976b).

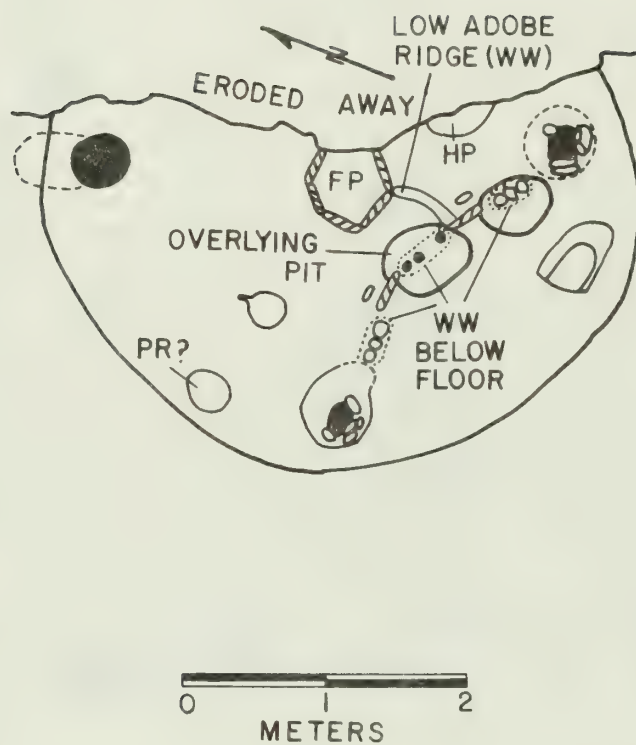


Figure A.34. Half House (Site 29SJ 1657).

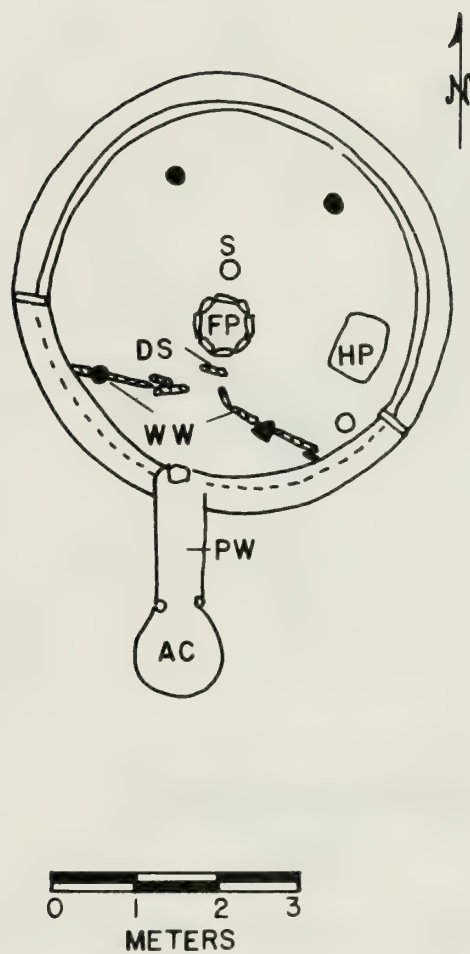


Figure A.35. Shabik'eshchee Village, Protokiva House (after Roberts 1929).

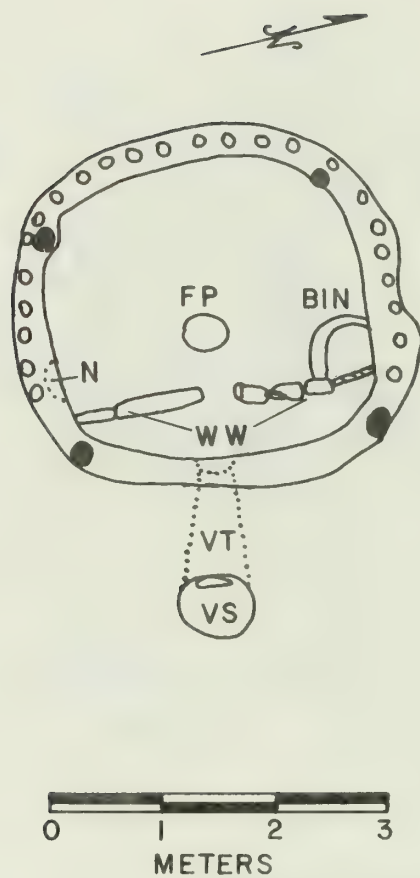


Figure A.36. Shabik'eshchee Village, House C (after Roberts 1929).

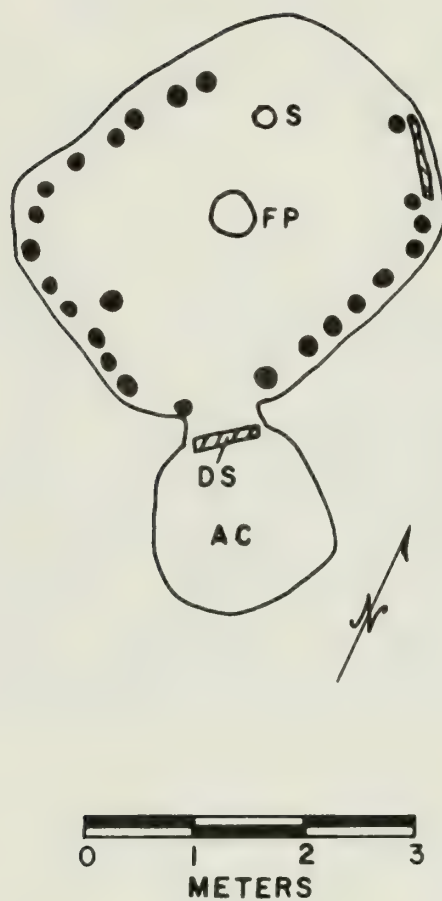


Figure A.37. Shabik'eshchee Village, House J (after Roberts 1929).

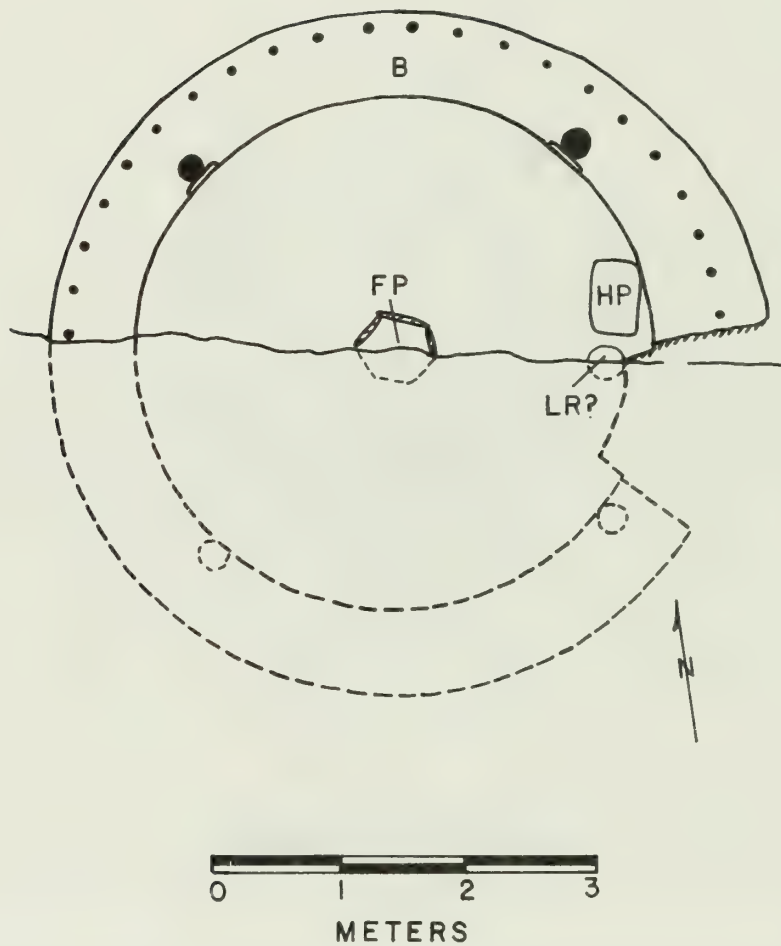


Figure A.38. Judd's Pithouse 2 (29SJ 1678).

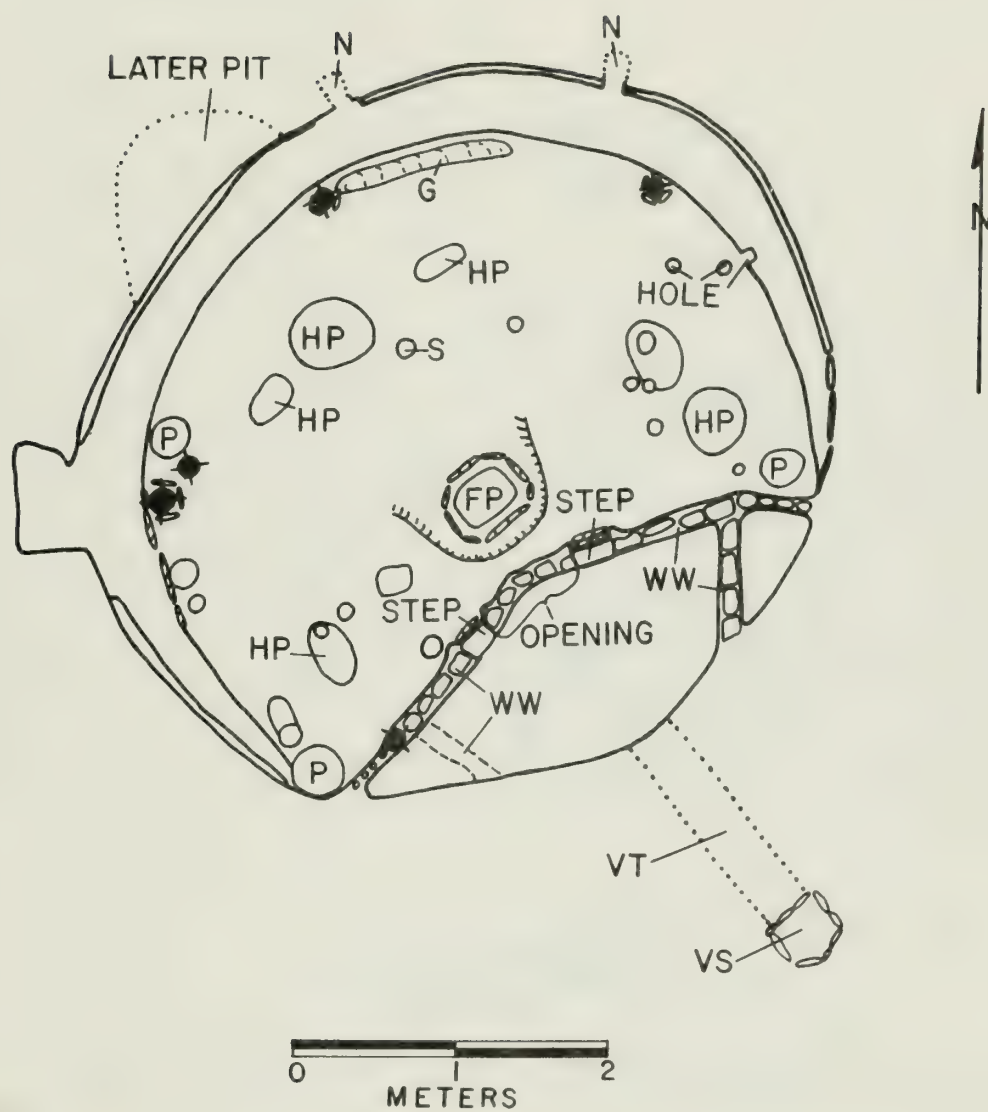


Figure A.39. Bc 50, Feature 5.

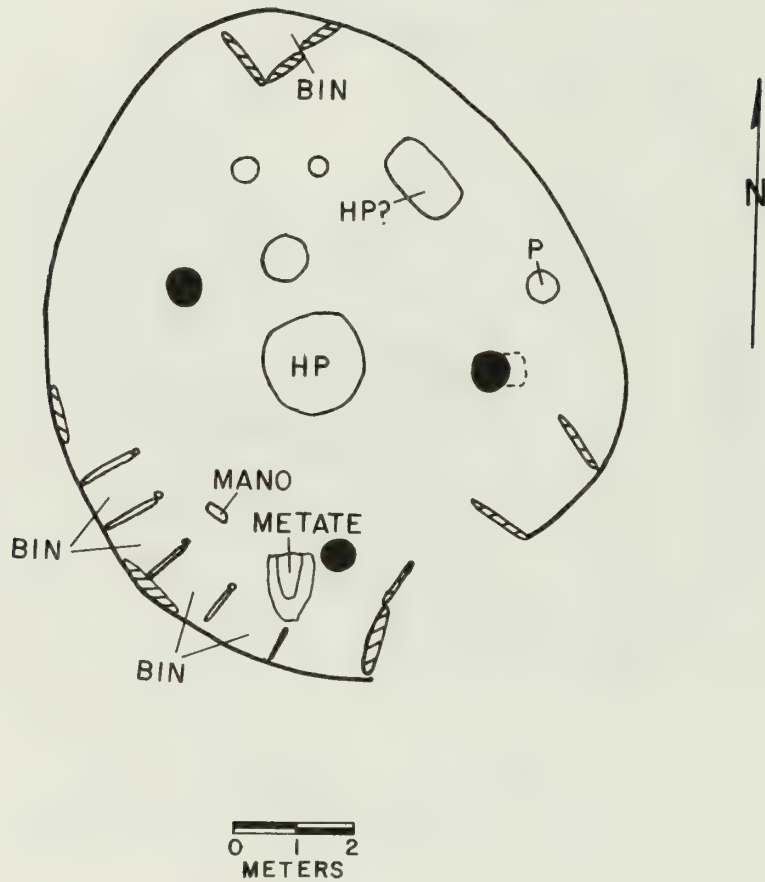


Figure A.40. Bc 50/51 Trash Mound, Pit Structure.

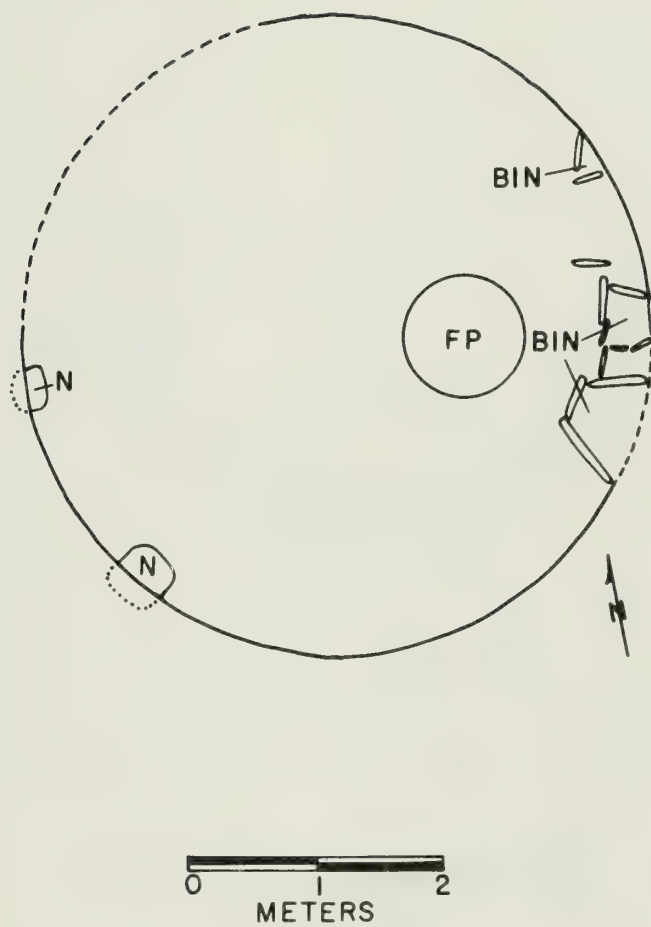


Figure A.41. Bc 53, Judd's Pithouse 1.

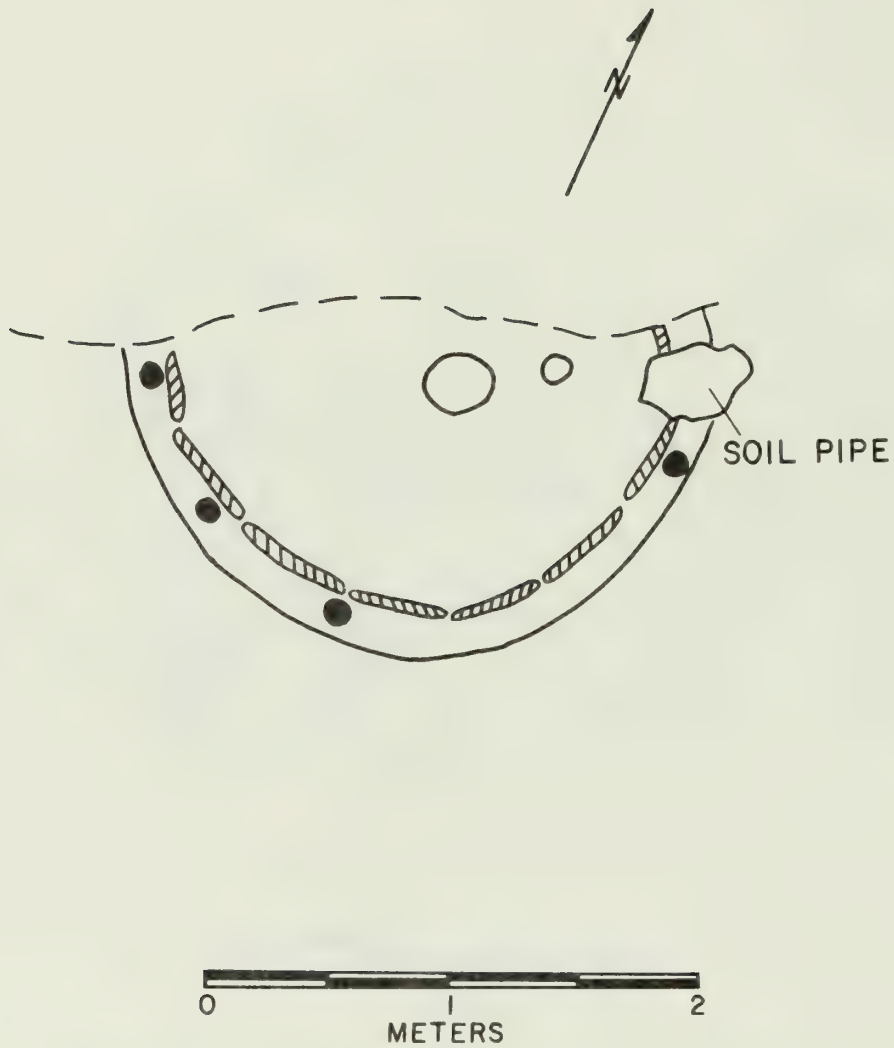


Figure A.42. Bc 236 (Zorro Bradley's Site), Pithouse (after Bradley 1971).

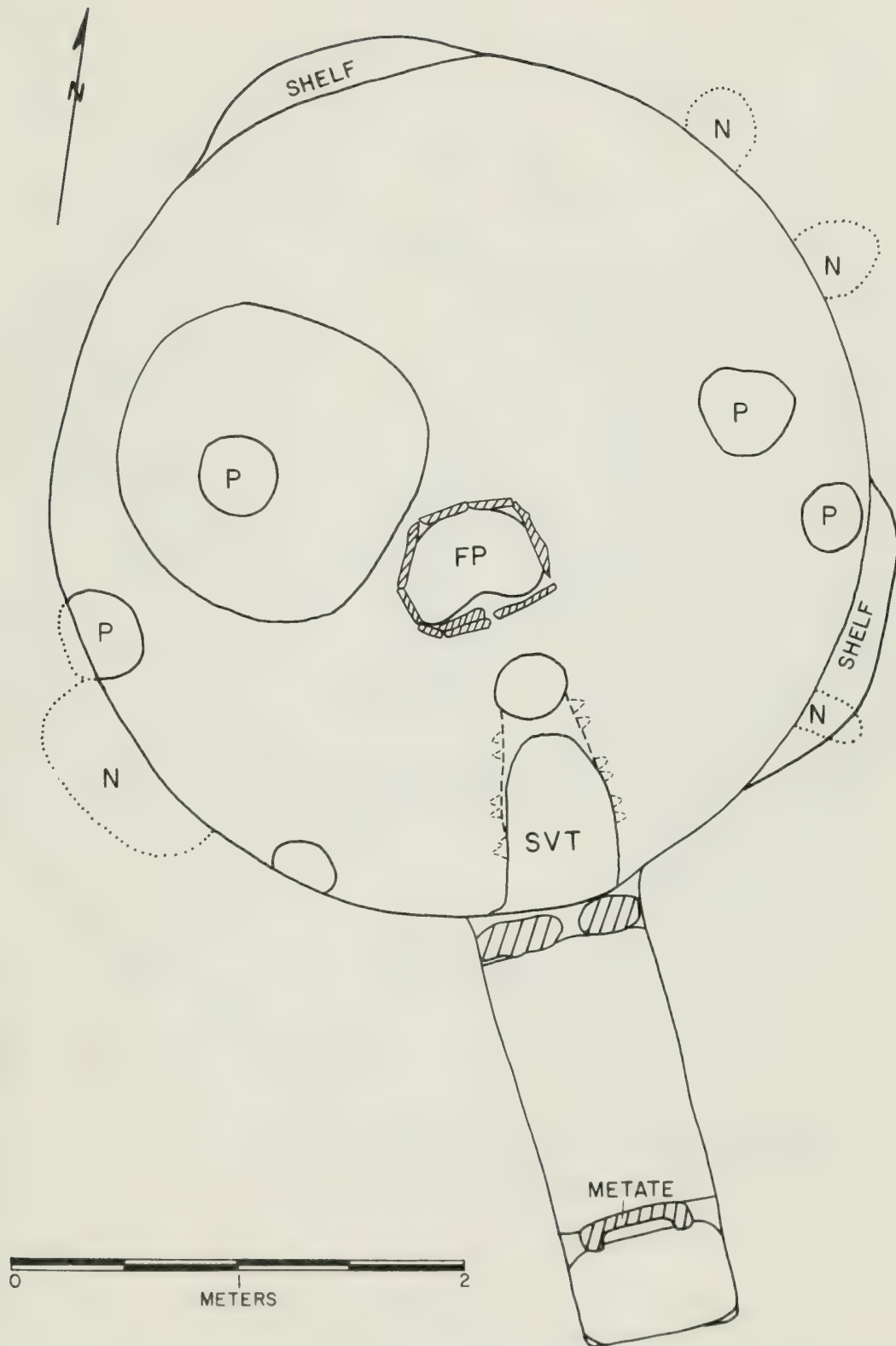


Figure A.43. Site 29SJ 299, Kiva B (after Loose 1979).

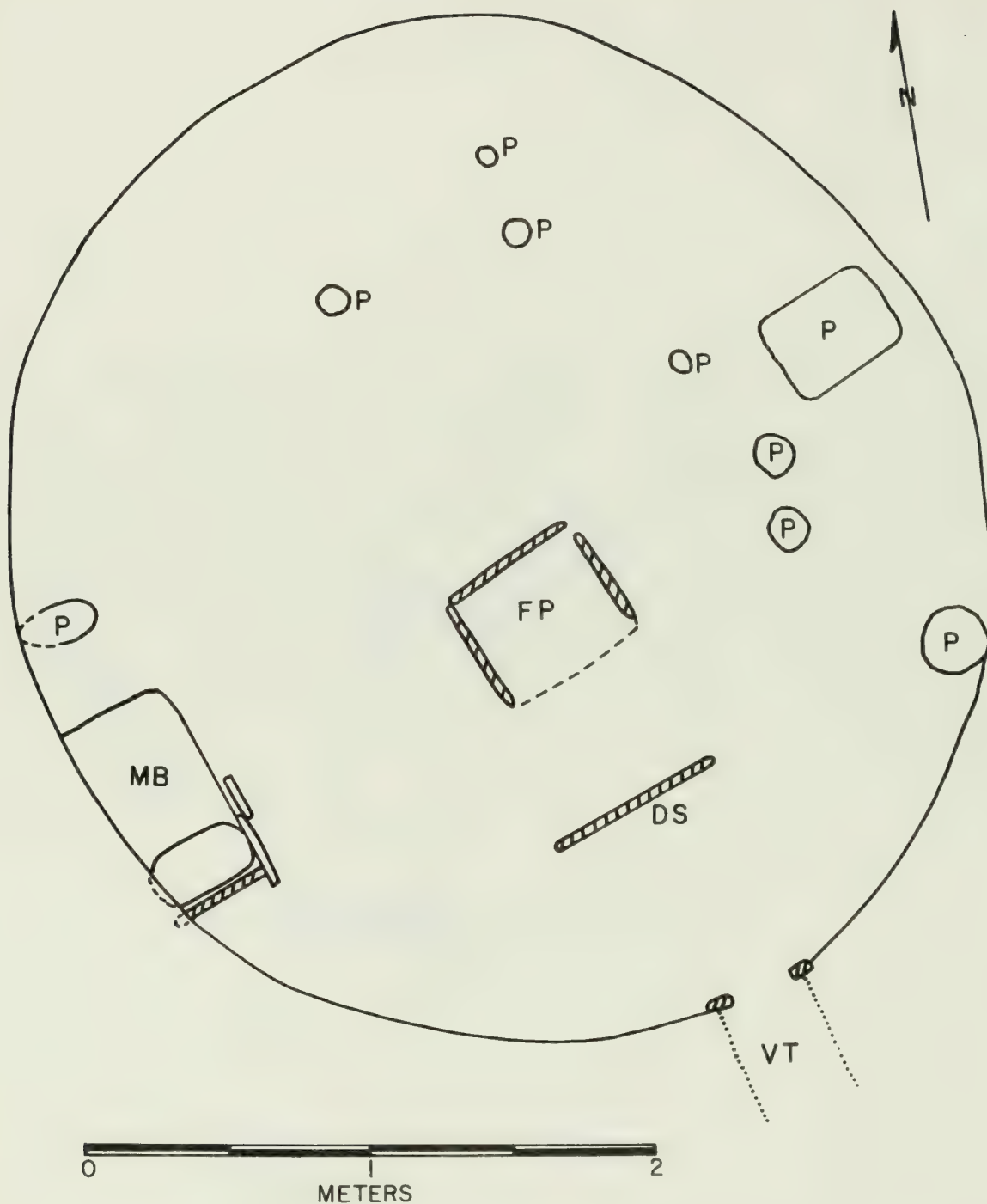


Figure A.44. Site 29SJ 627, Kiva D (after Truell 1981).

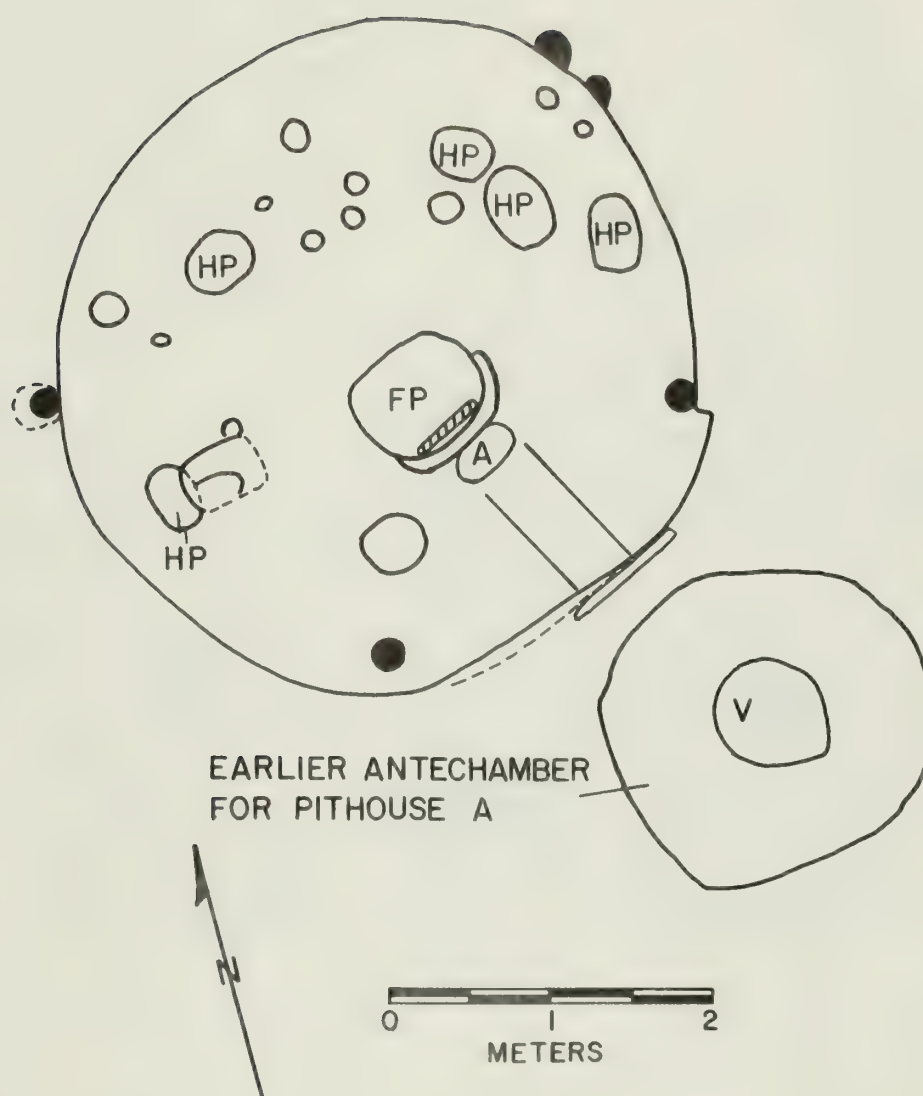


Figure A.45. Site 29SJ 627, Pit Structure E (after Truell 1981).

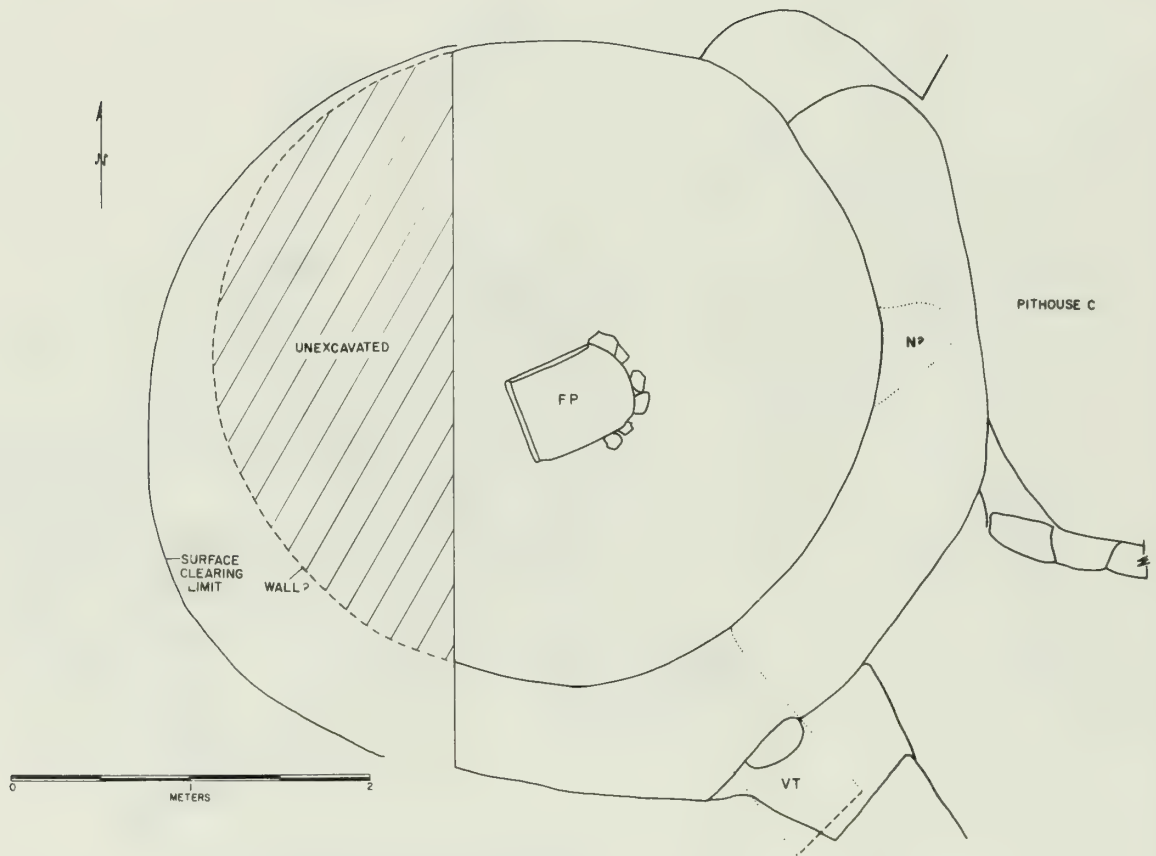


Figure A.46. Site 29SJ 627, Kiva G (after Truell 1981).

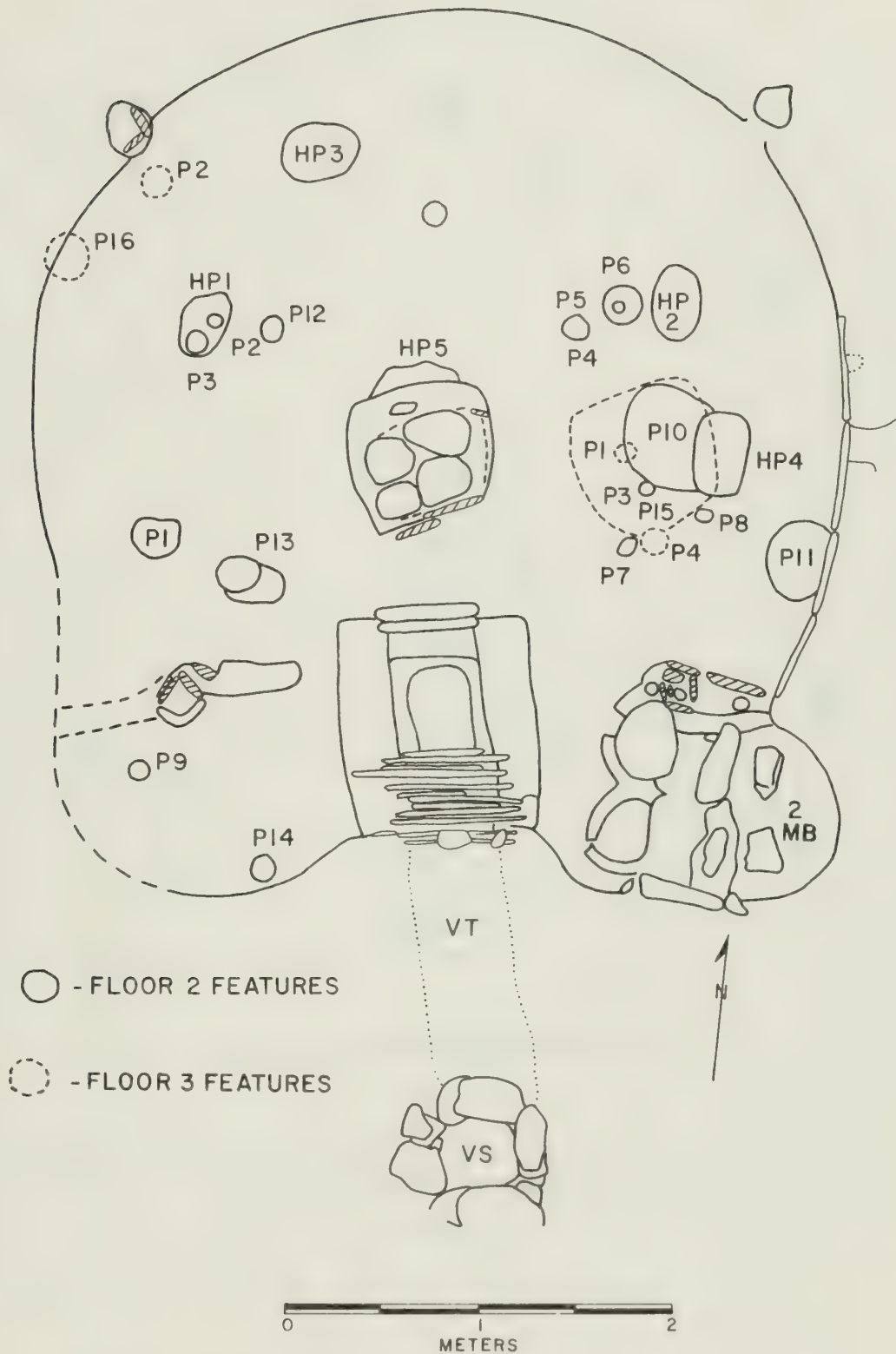


Figure A.47. Site 29SJ 629, Pithouse 2 (after Windes 1978).

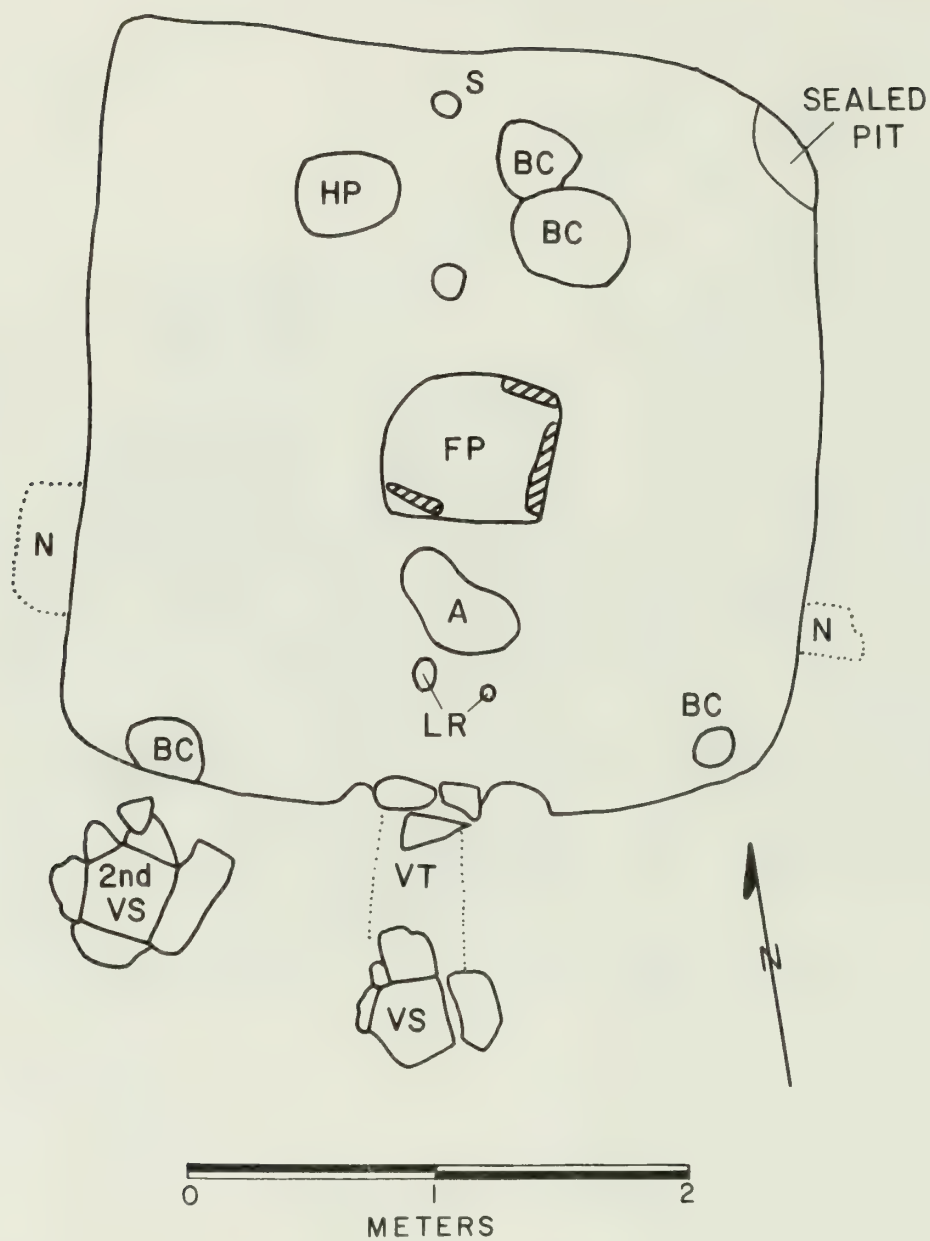


Figure A.48. Site 29SJ 629, Pithouse 3 (after Windes 1978b).

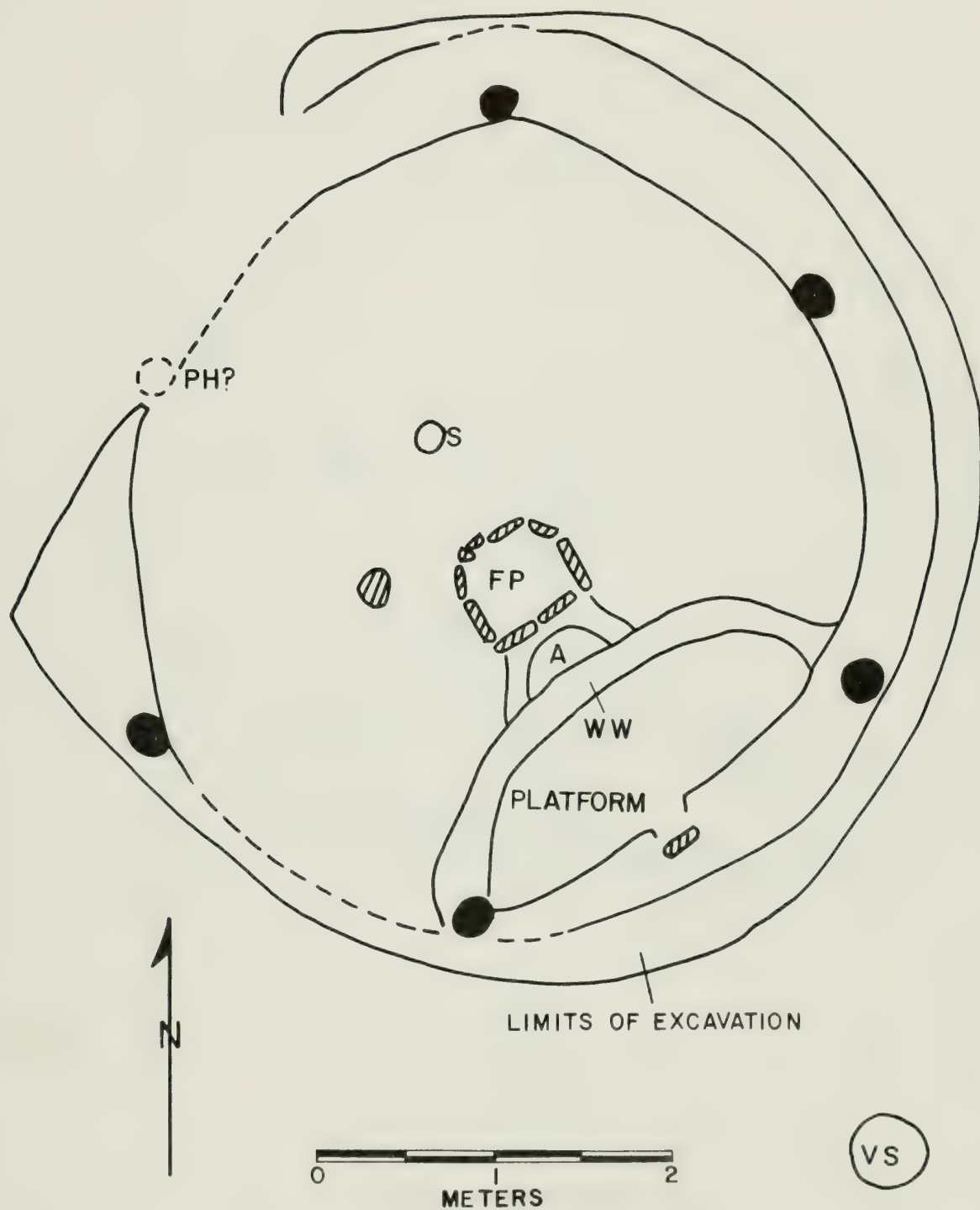


Figure A.49. Site 29SJ 1360, House 1, Kiva A (McKenna 1983).

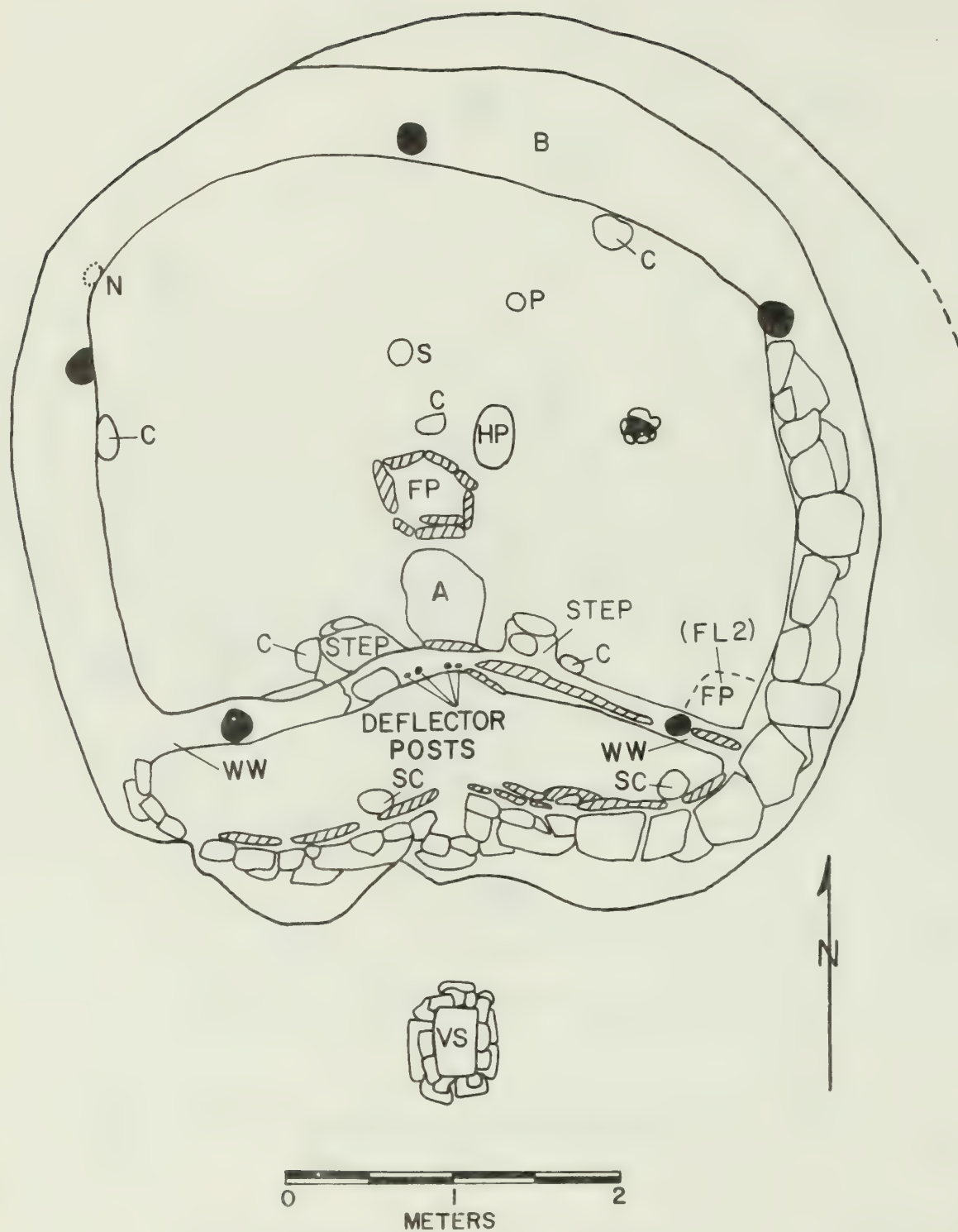


Figure A.50. Site 29SJ 1360, House 1, Pithouse B (McKenna 1983).

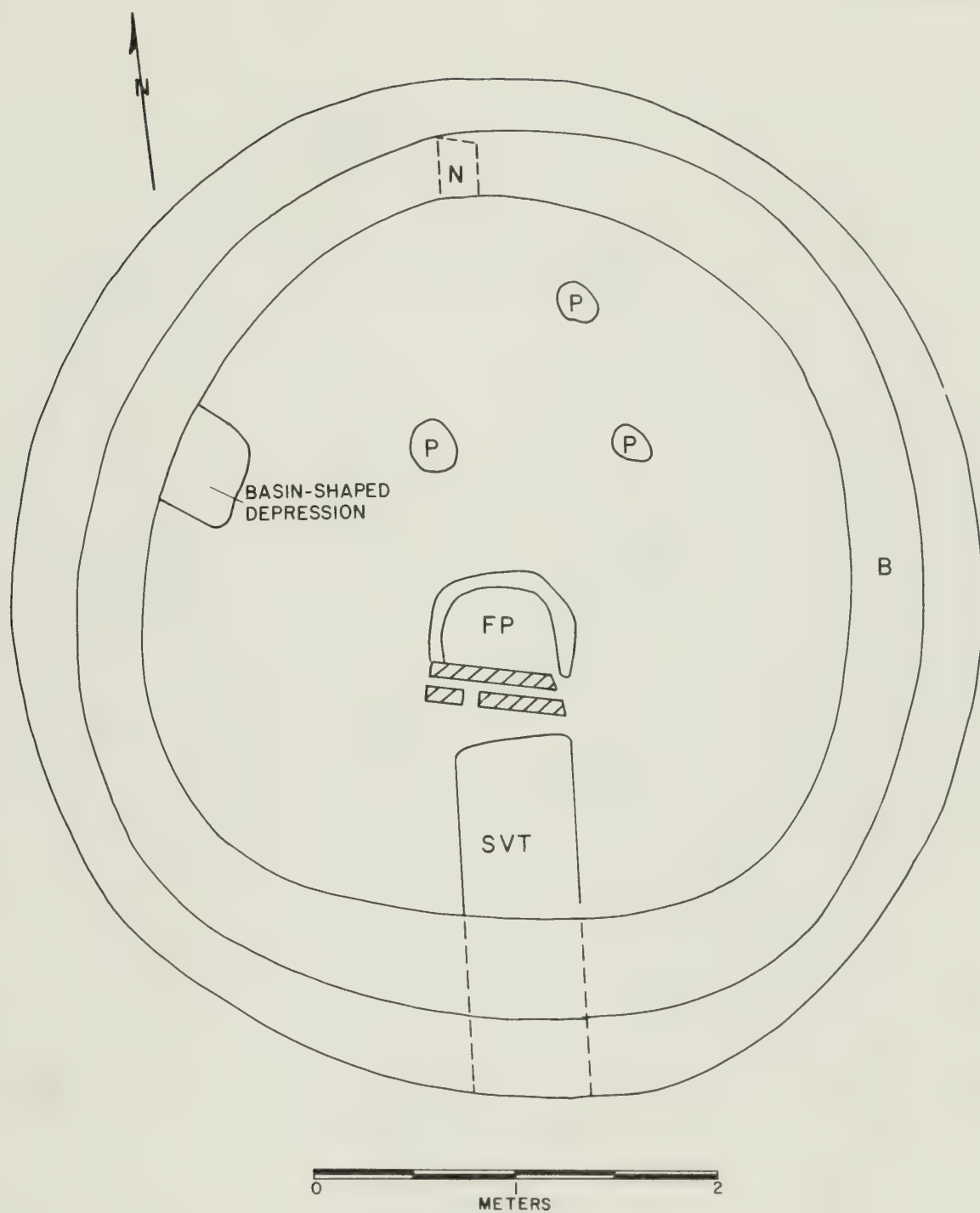


Figure A.51. Three-C site, Kiva 1 (after Vivian 1965).

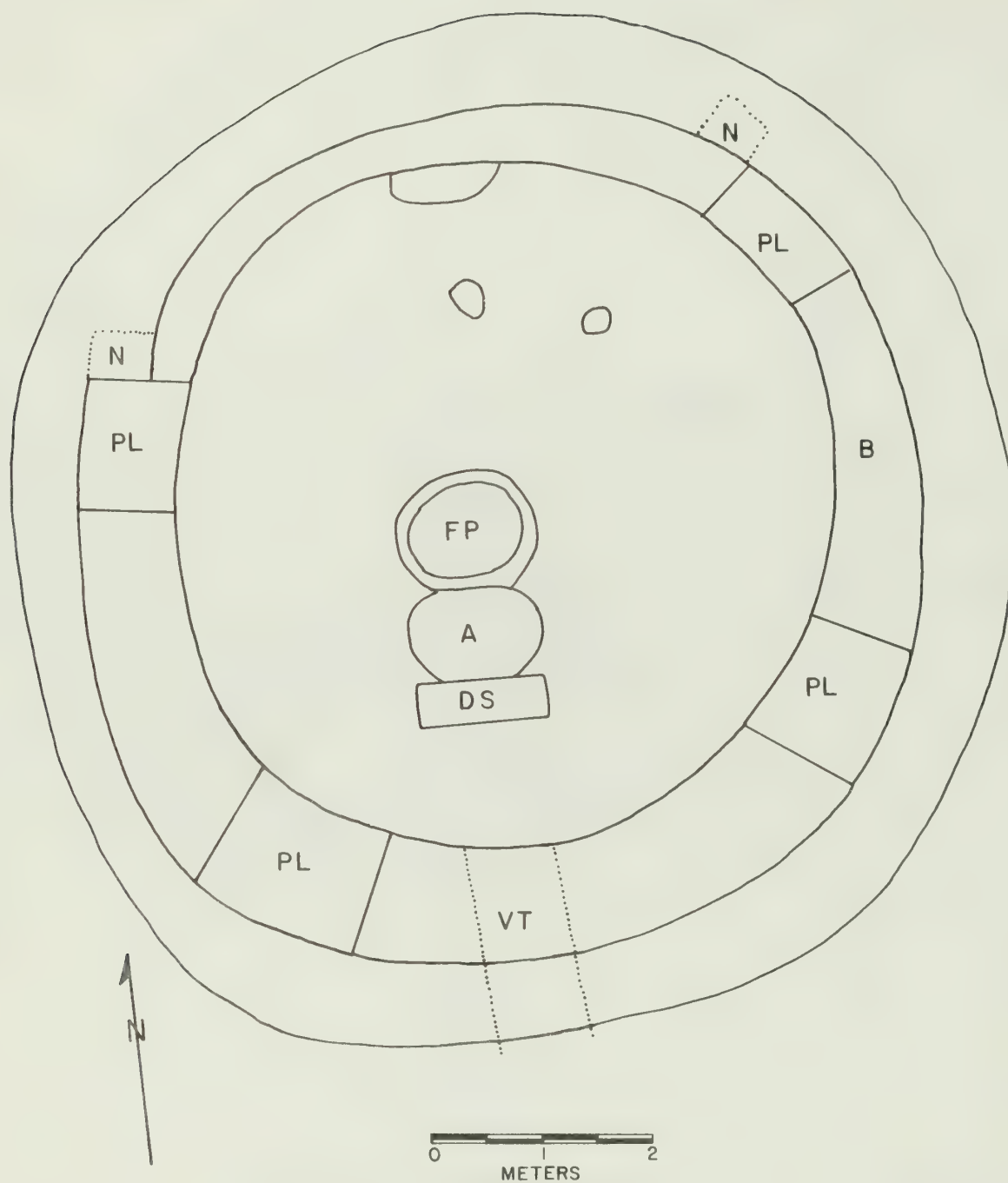


Figure A.52. Three-C site, Kiva 2 (after Vivian 1965).

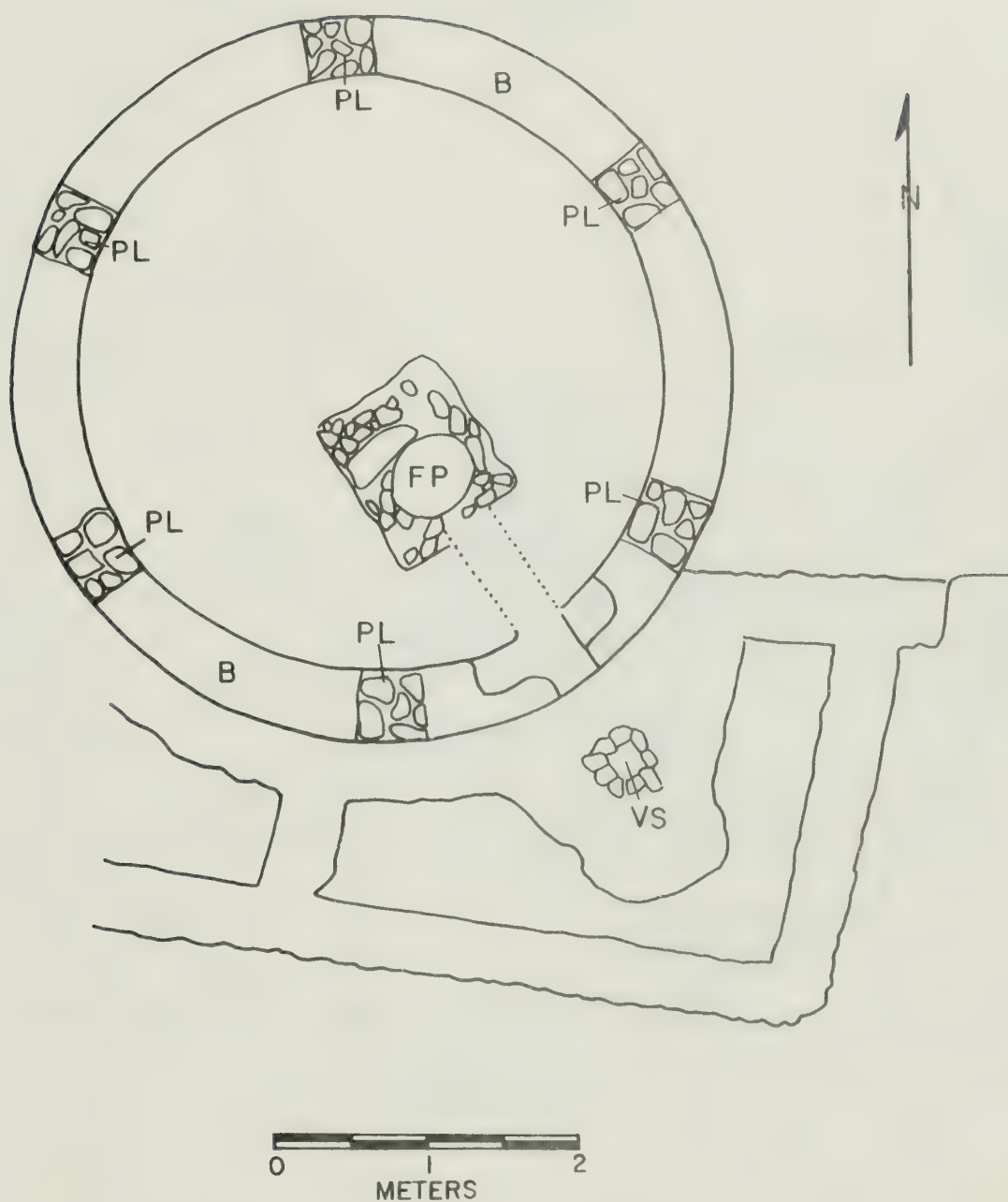


Figure A.53. Leyit Kin, Kiva A (after Dutton 1938).

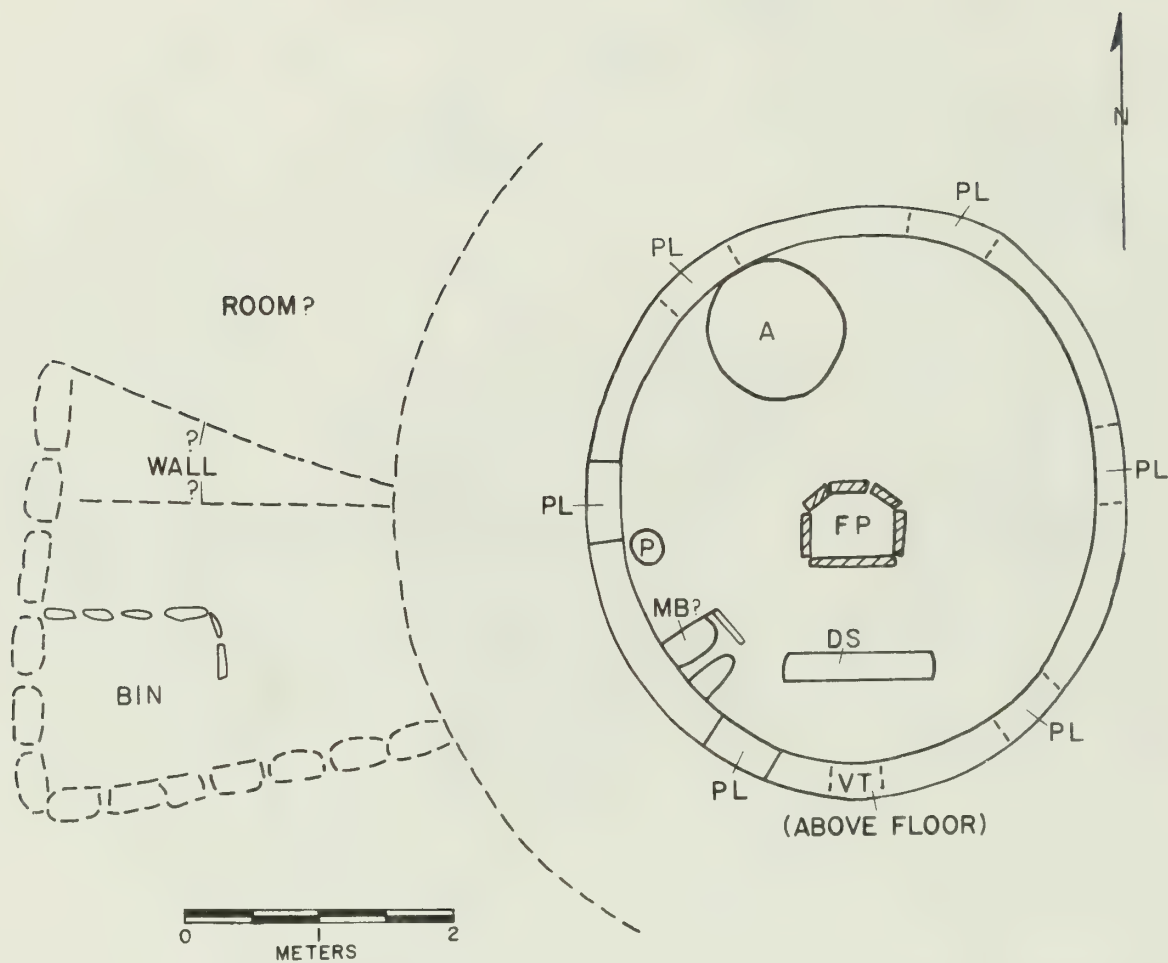


Figure A.54. Site 29SJ 240, Kiva (after Vivian, Chaco Center Archives #2172F).

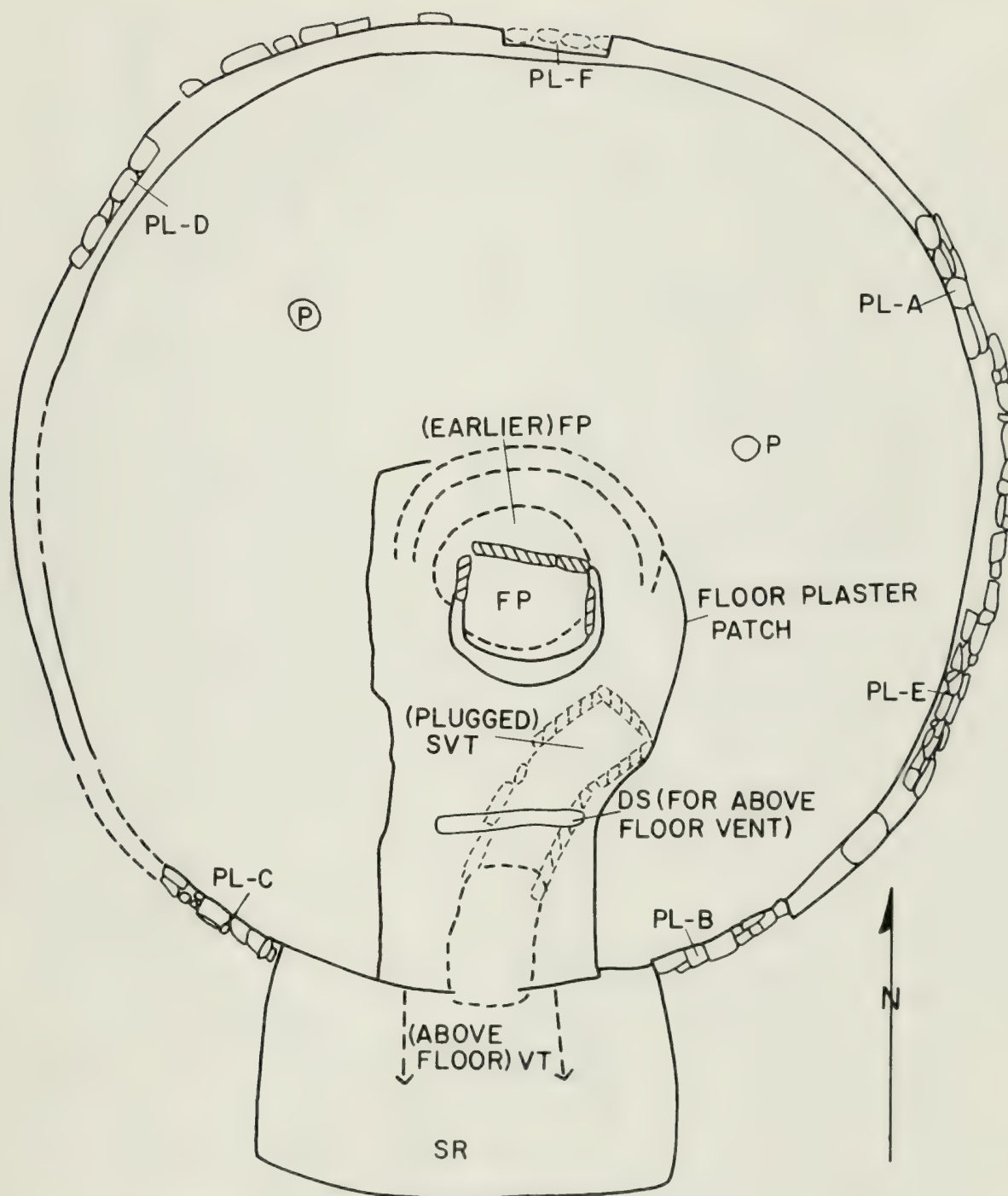


Figure A.55. Site 29SJ 627, Kiva E (after Truell 1981).

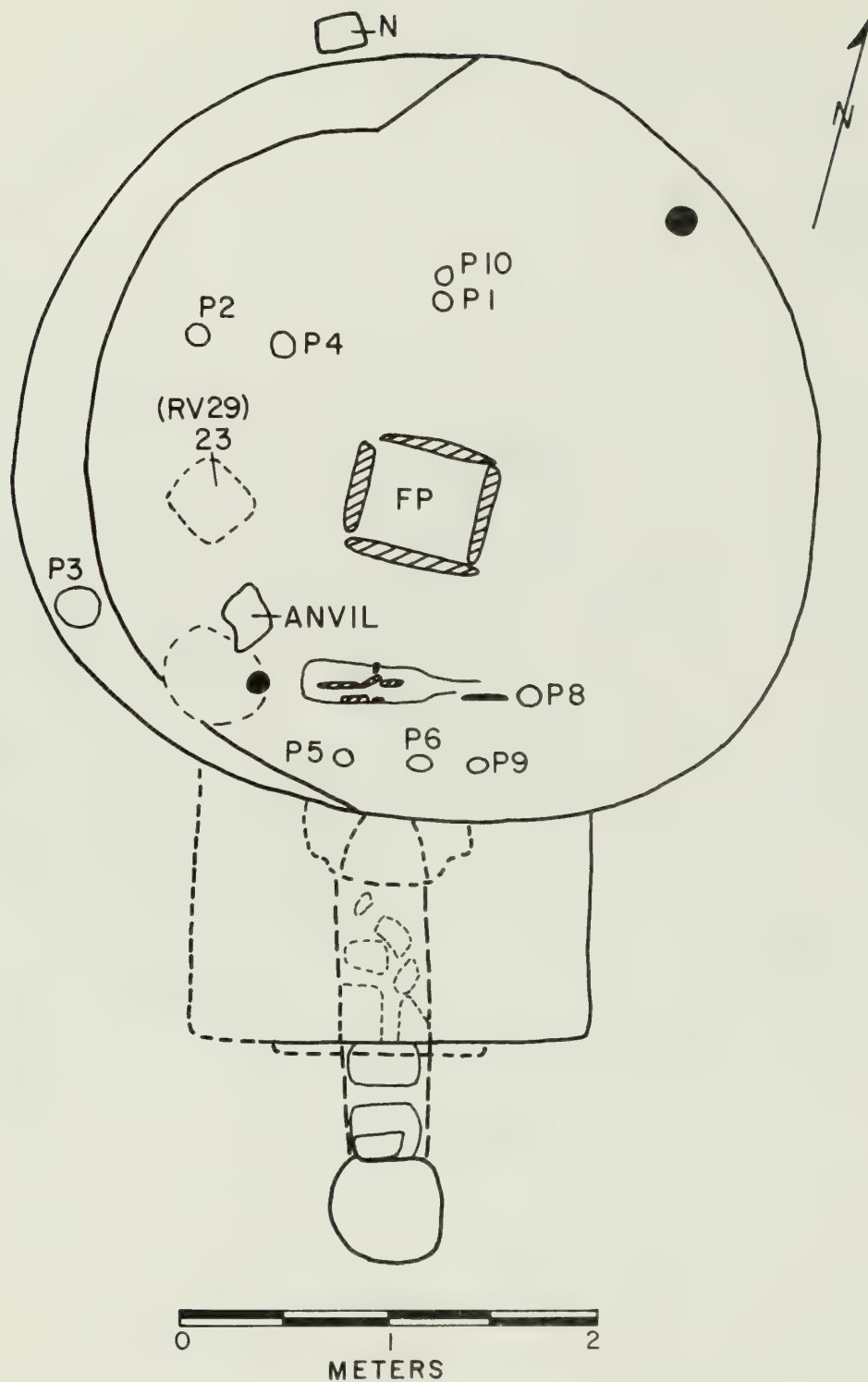


Figure A.56. Site 29SJ 629, Kiva (after Windes 1978b).

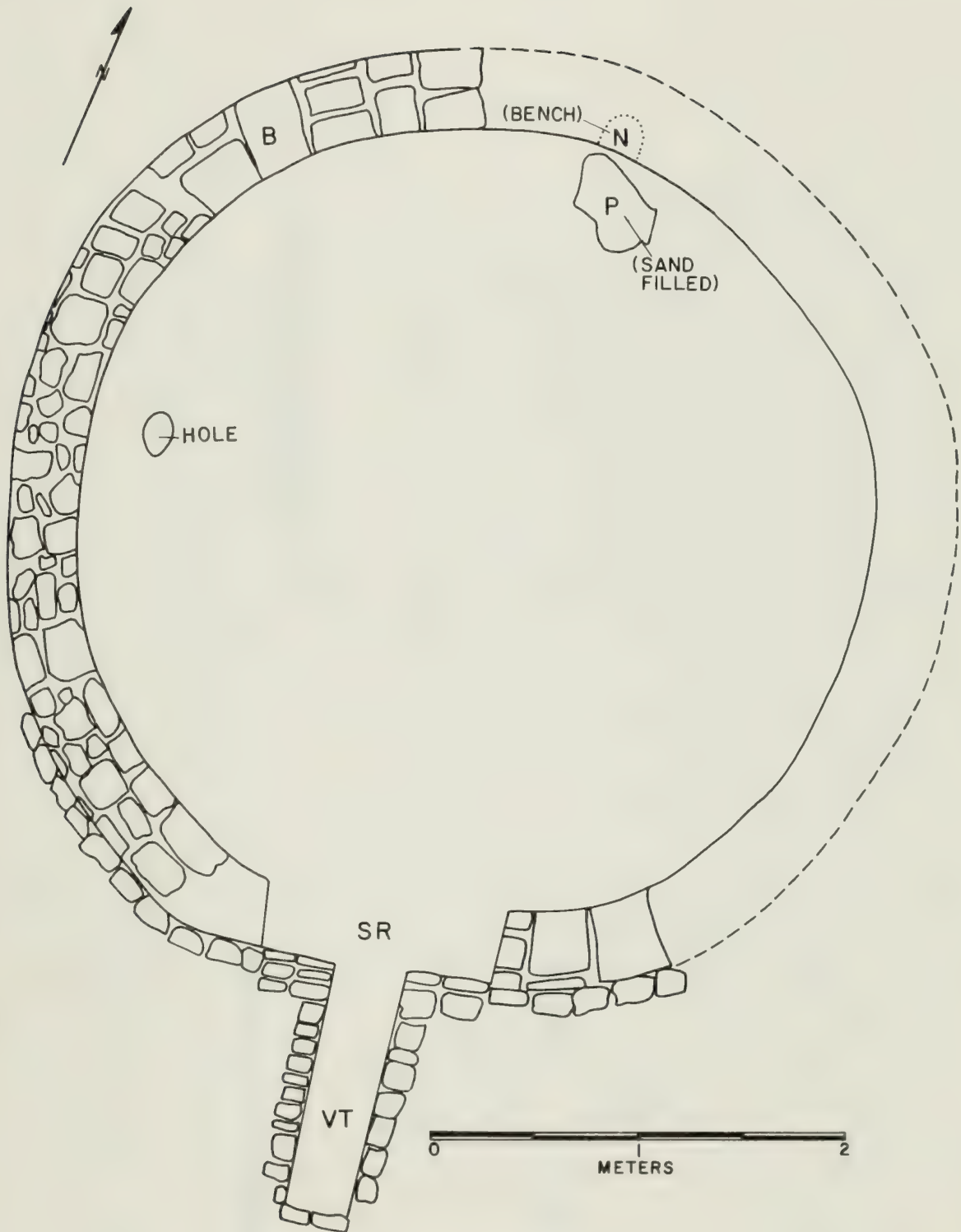


Figure A.57. Site 29SJ 721, Kiva (after Windes 1975b).

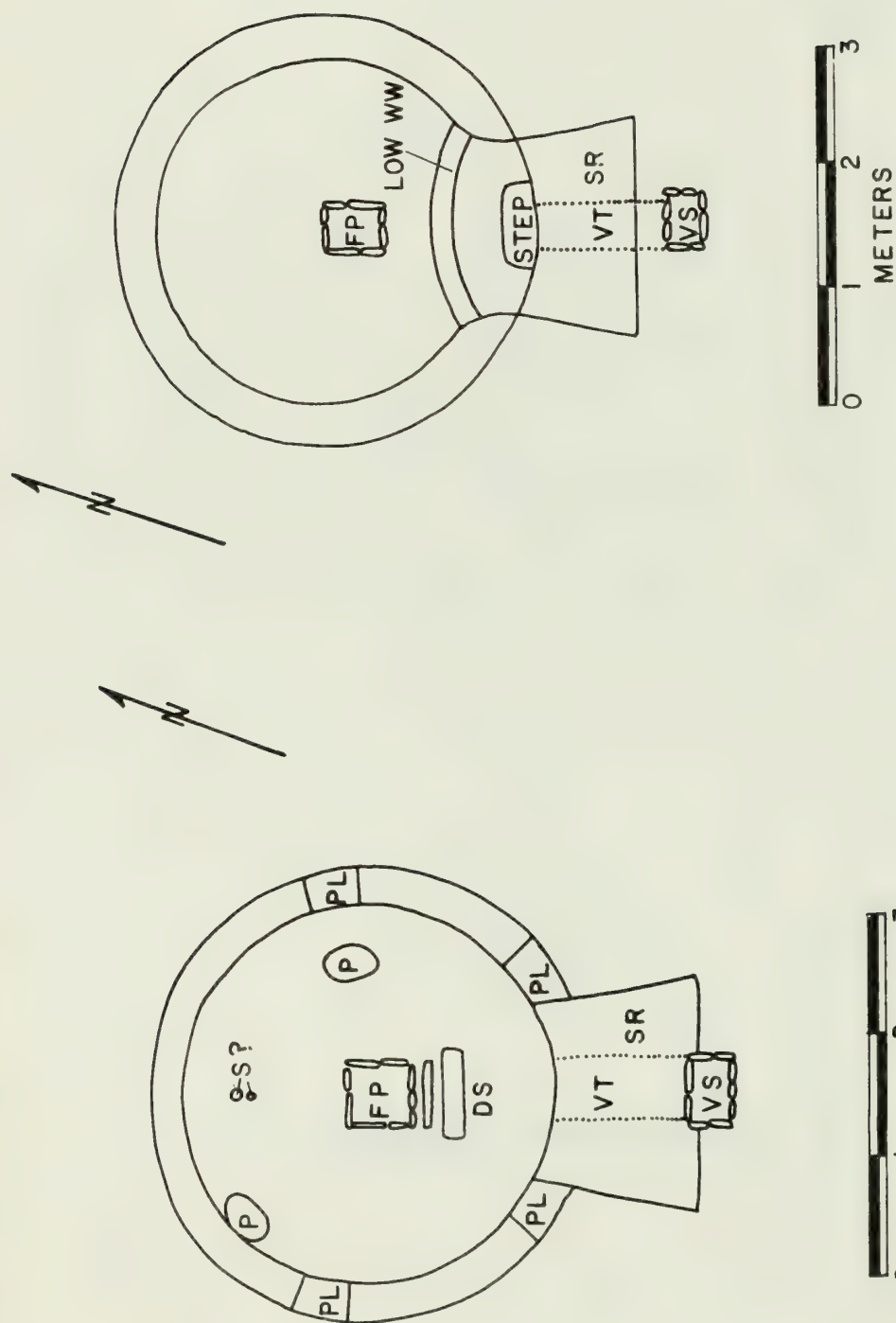
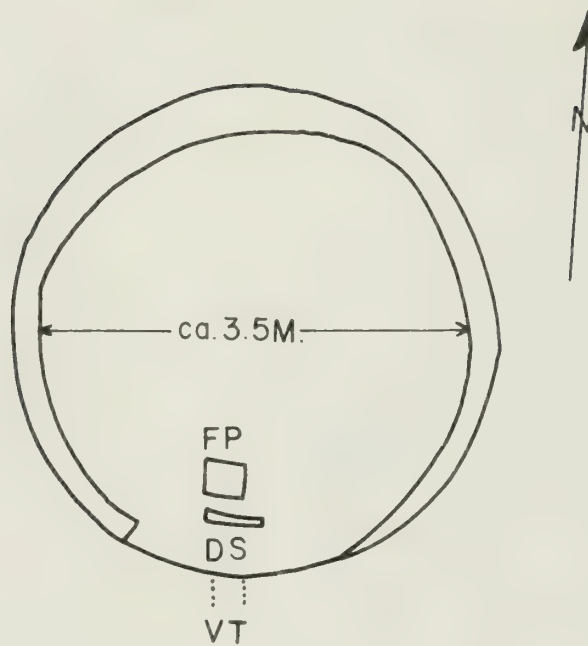


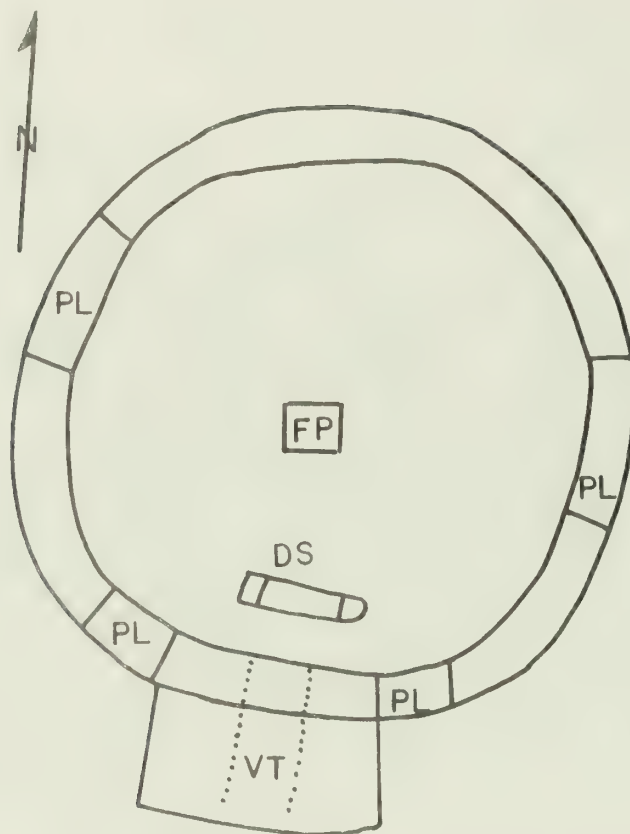
Figure A.58a. Bc 50, Kiva 1 (Brand et al. 1937).

Figure A.58a. Bc 50, Kiva 1 (Brand et al. 1937).



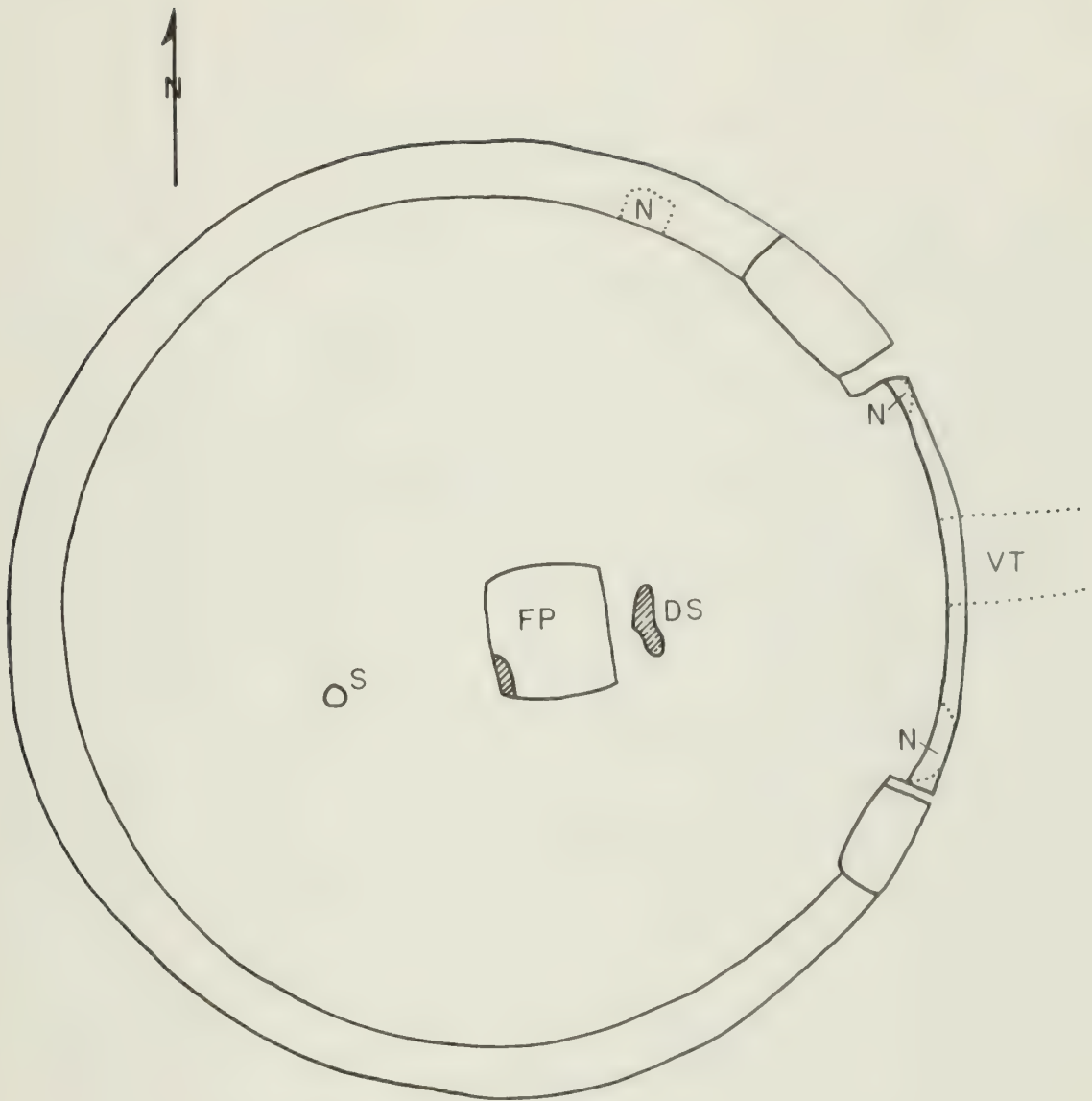
(NO SCALE)

Figure A.59. Bc 50, rough sketch of Kiva 4 (Chaco Center Archives #1680).



(NOT TO SCALE)

Figure A.60. Bc 51, rough sketch of Kiva 1 (Chaco Center Archives #1724).



(NOT TO SCALE)

Figure A.61. Bc 51, rough sketch of Kiva 2 (Chaco Center Archives #1725).

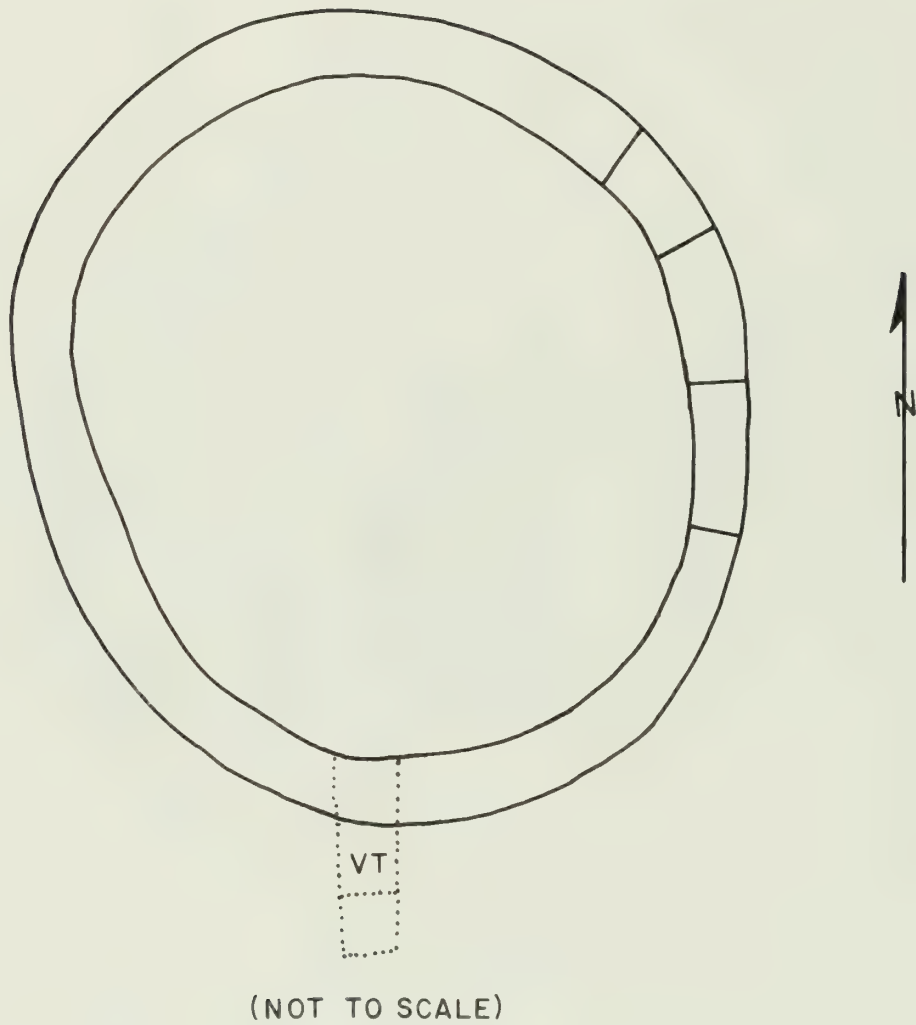


Figure A.62. Bc 51, rough sketch of Kiva 3 (Chaco Center Archives #1726).

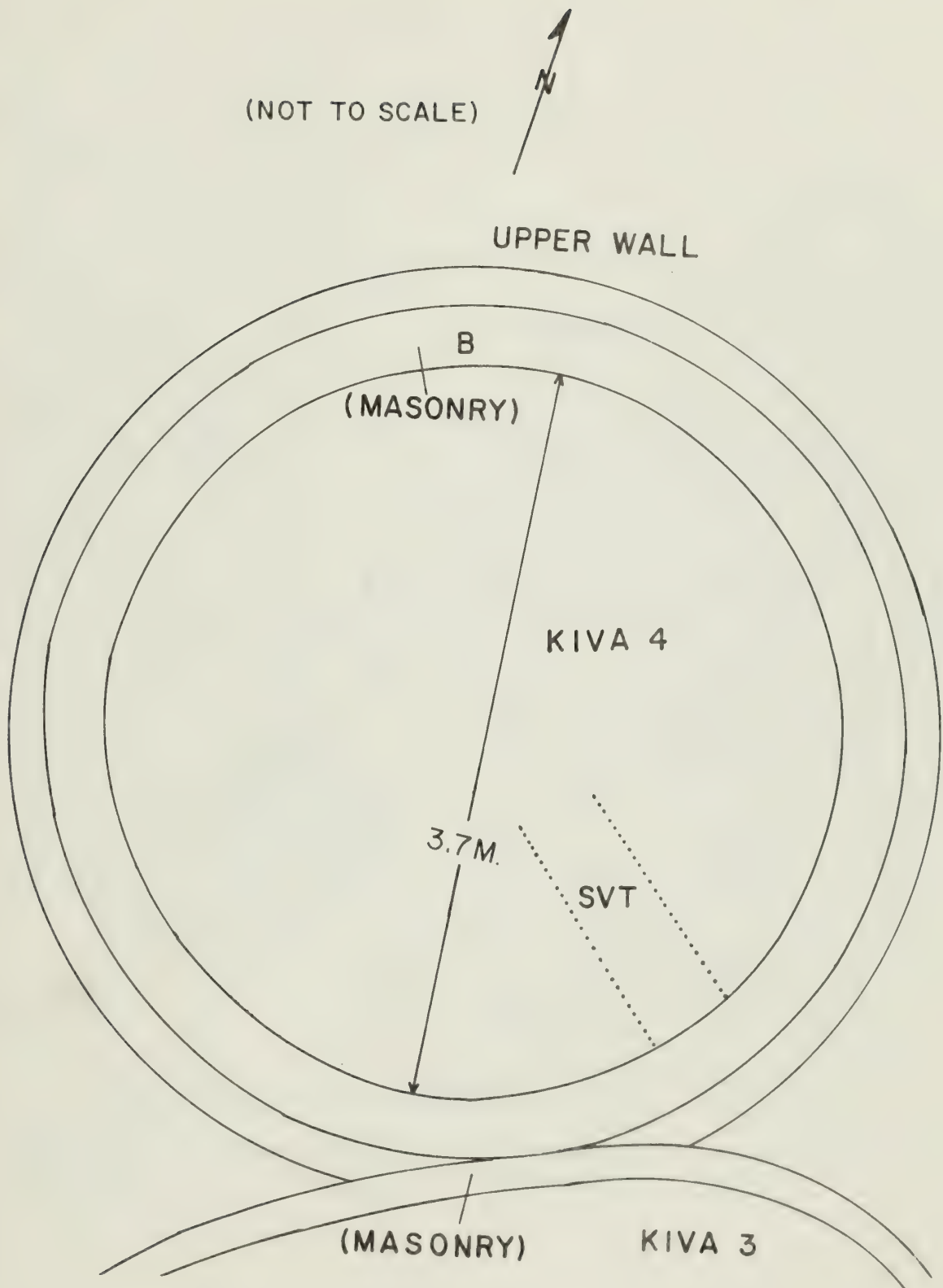
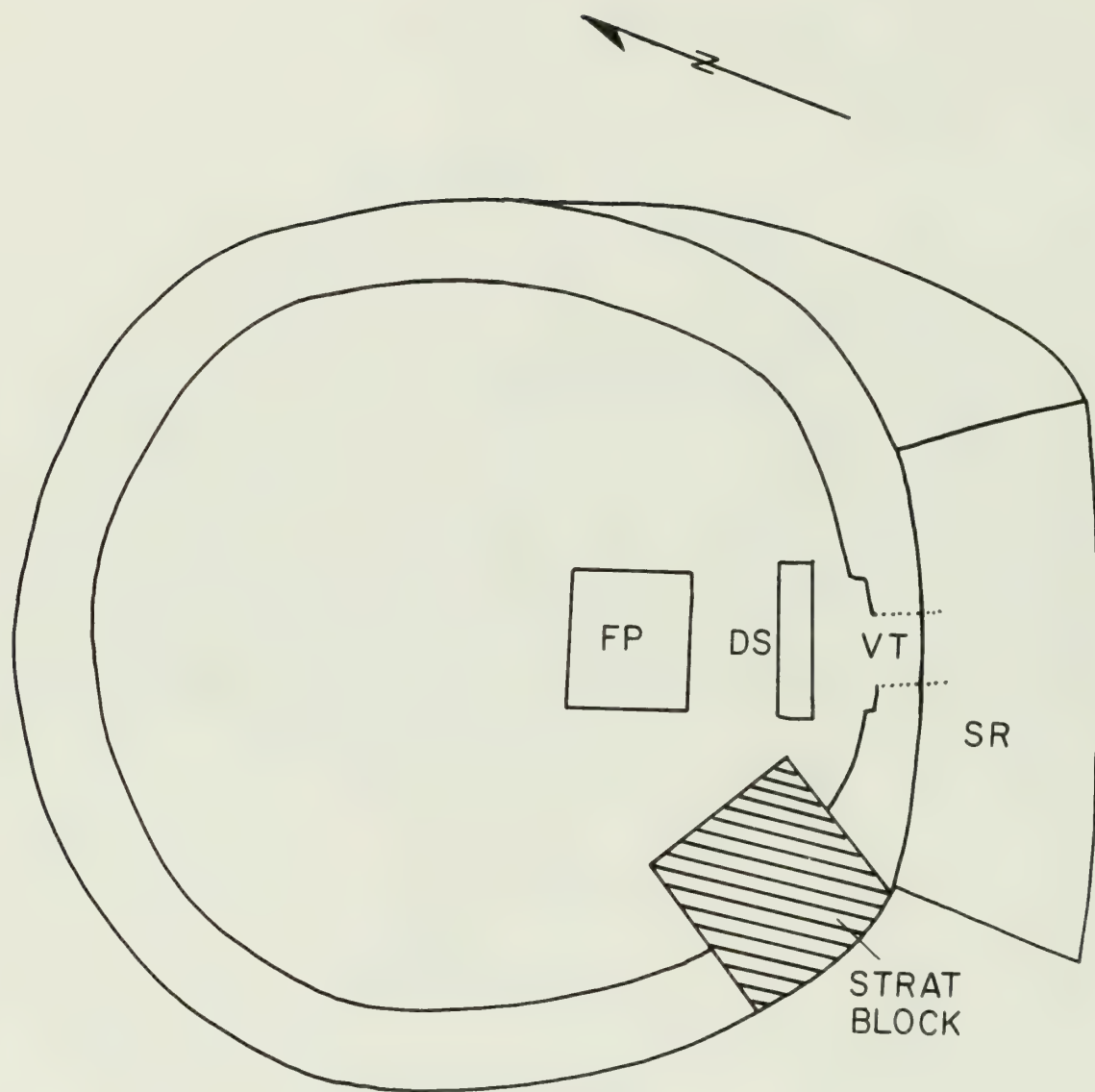


Figure A.63. Bc 51, rough sketch of Kiva 4.



(NOT TO SCALE)

Figure A.64. Bc 51, rough sketch of Kiva 6 (Chaco Center Archives #1729).

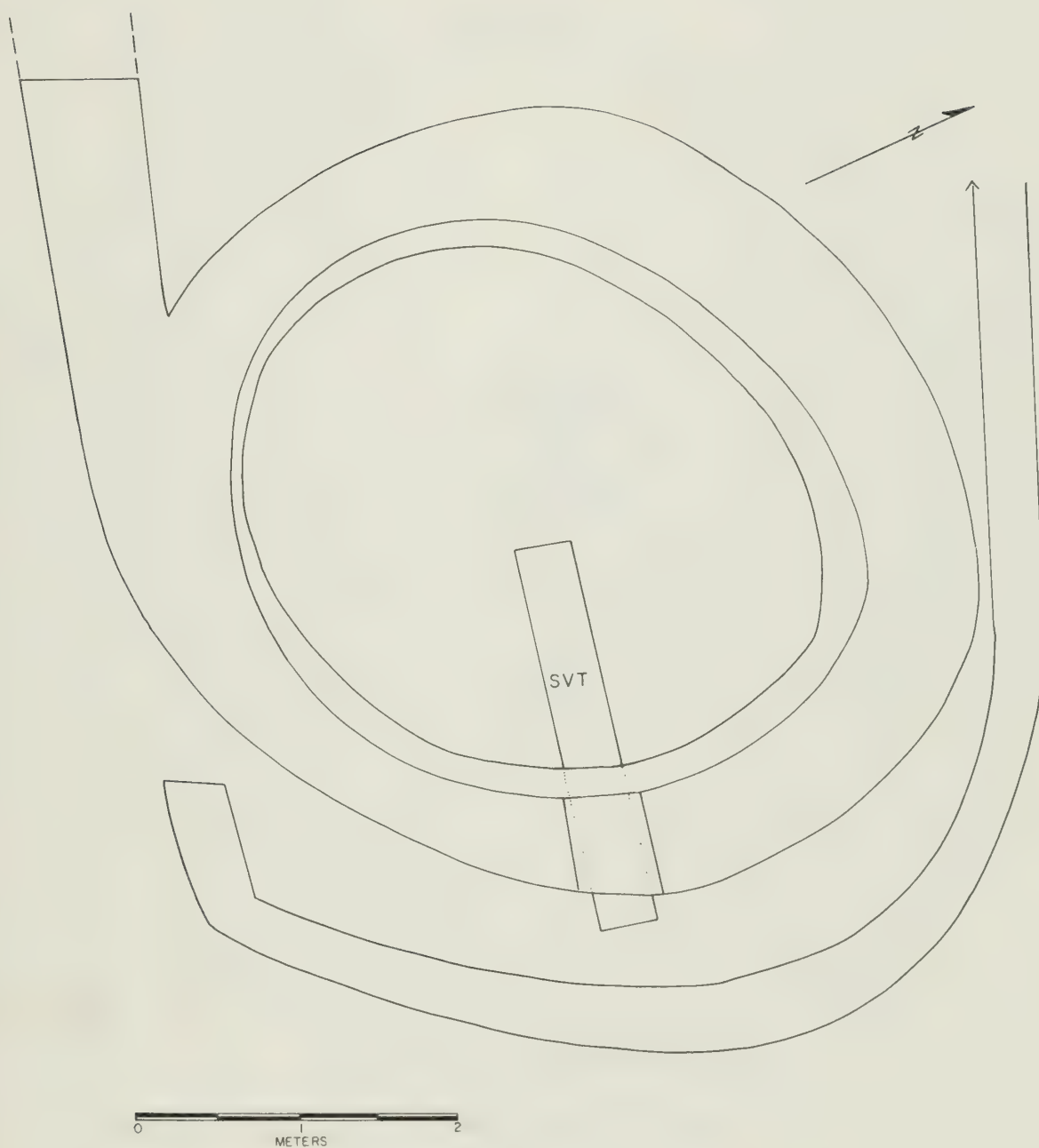
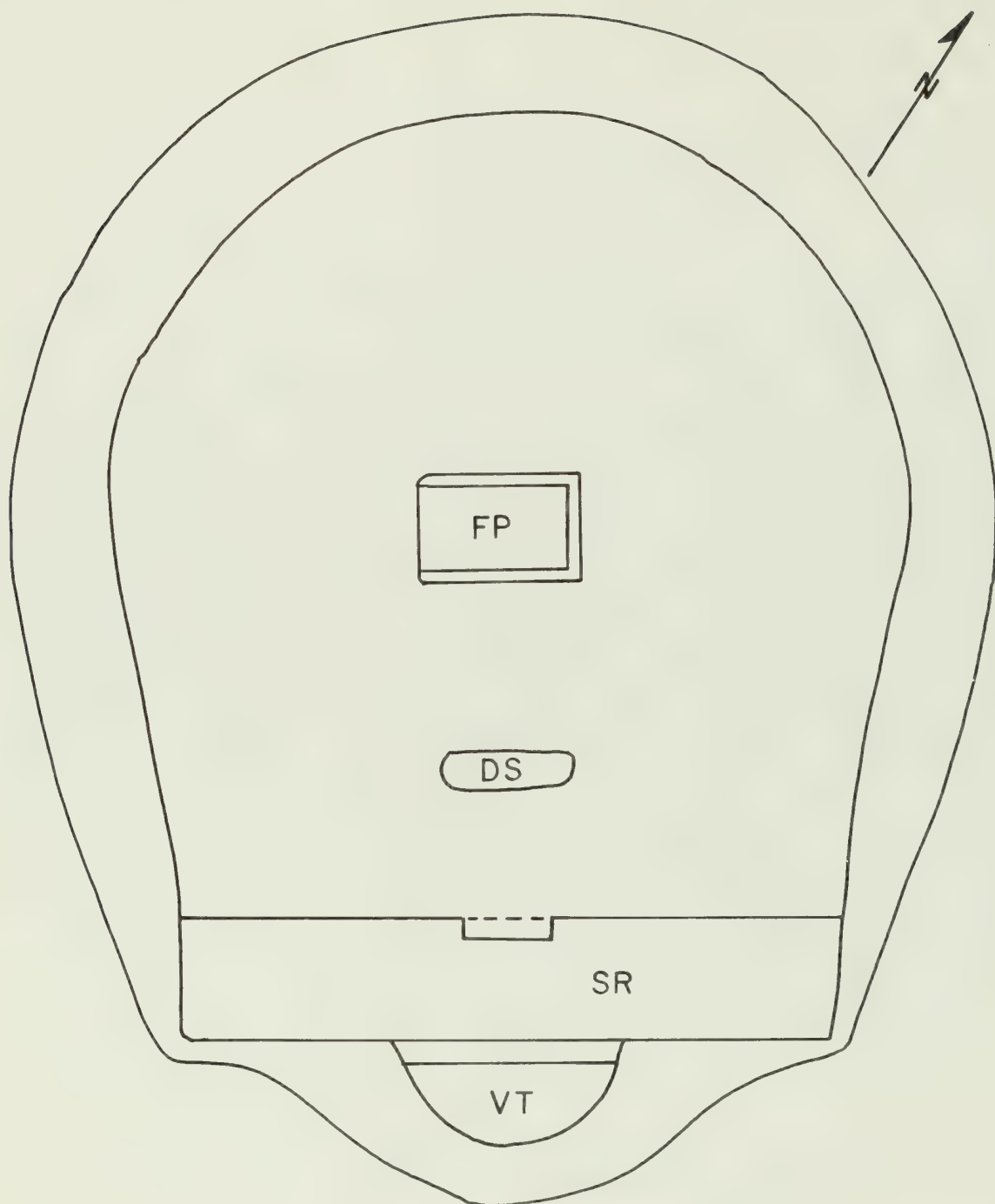
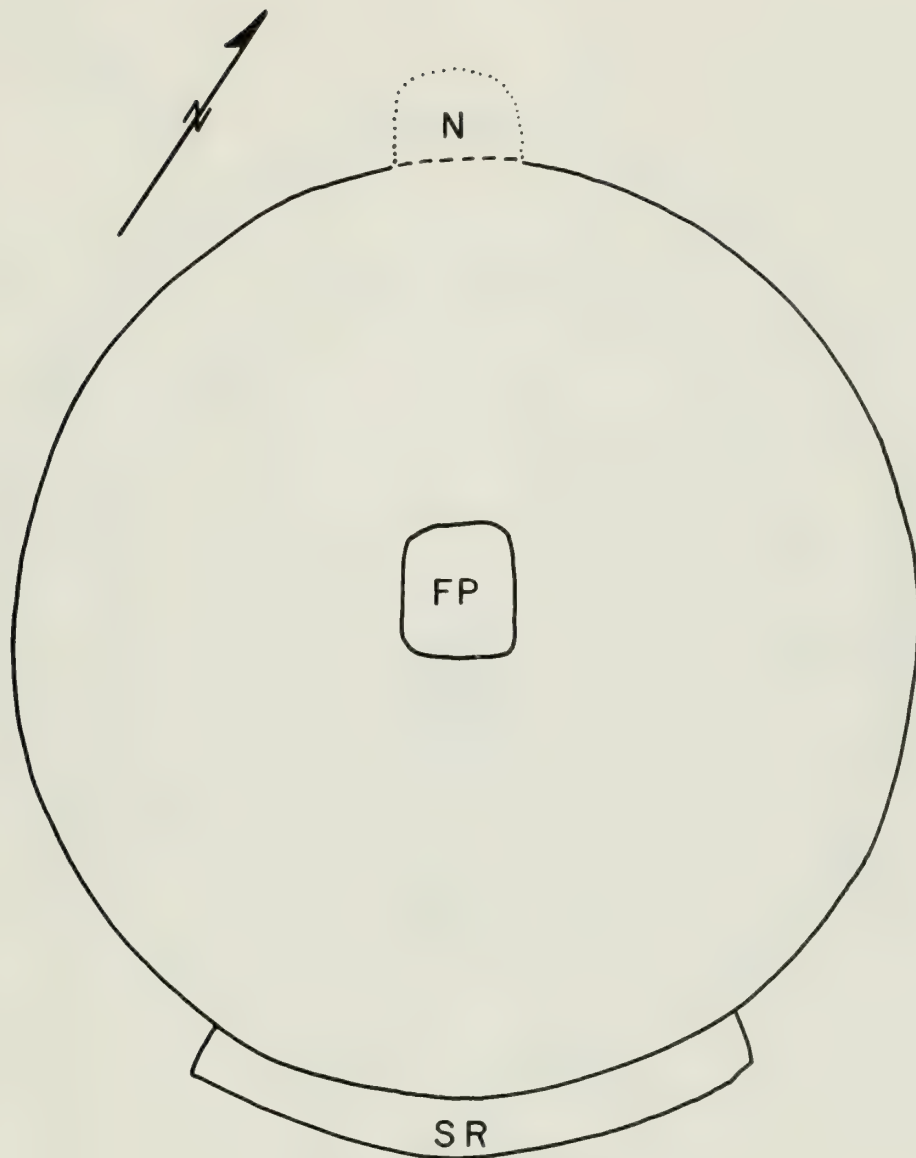


Figure A.65. Bc 52, rough sketch of Kiva 2 (after Vivian).



(NOT TO SCALE)

Figure A.66. Bc 53, rough sketch of Kiva A (Chaco Center Archives #2103).



(NOT TO SCALE)

Figure A.67. Bc 53, rough sketch of Kiva B (Chaco Center Archives #2103).

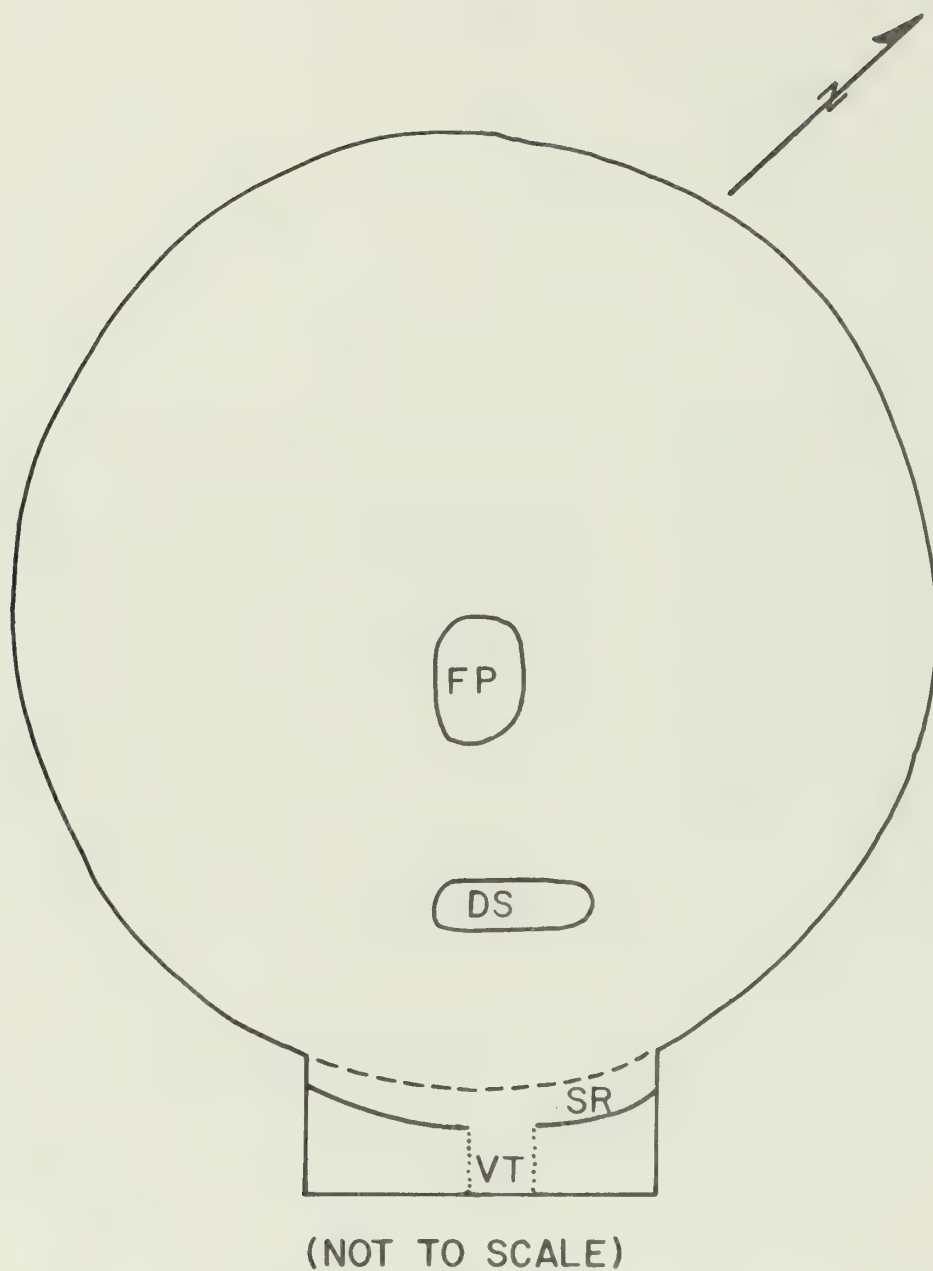
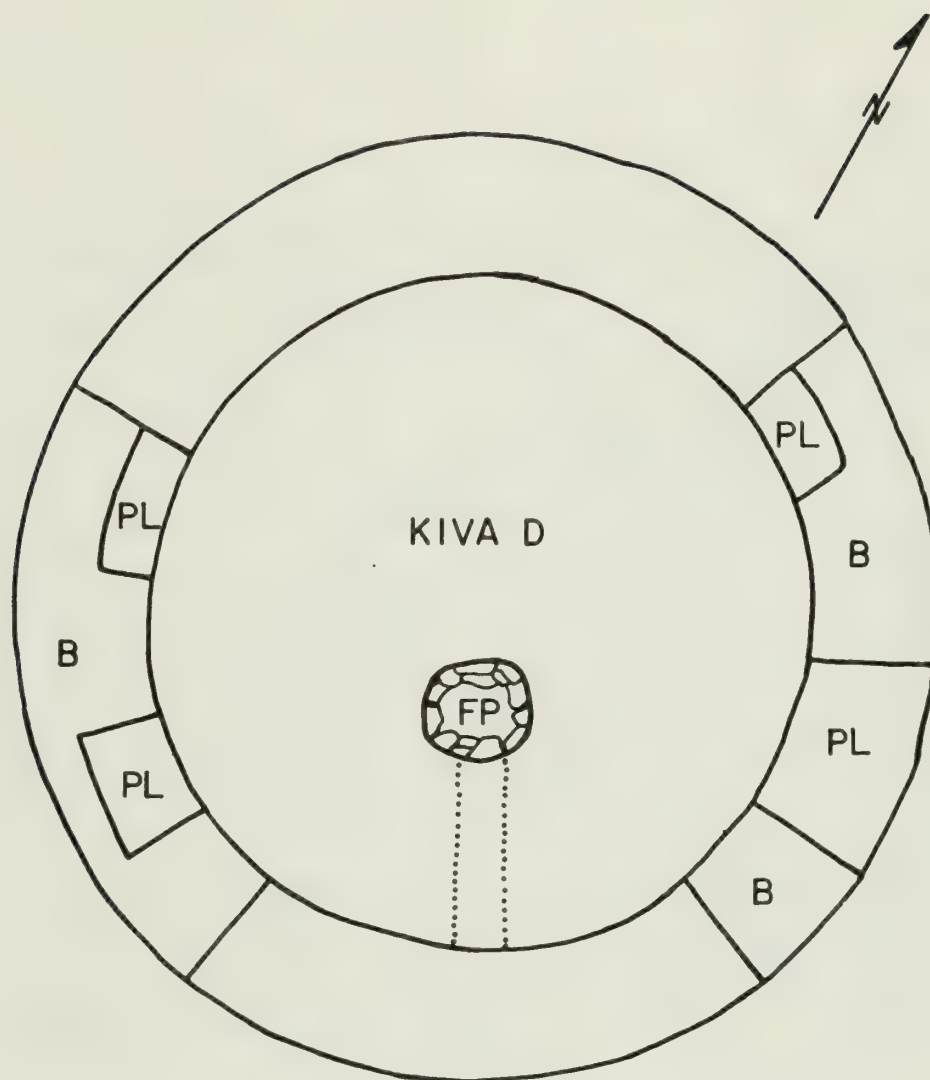


Figure A.68. Bc 53, rough sketch of Kiva C (Chaco Center Archives #2103).



(NOT TO SCALE)

Figure A.69. Bc.53, rough sketch of Kiva D (Chaco Center Archives #2103).

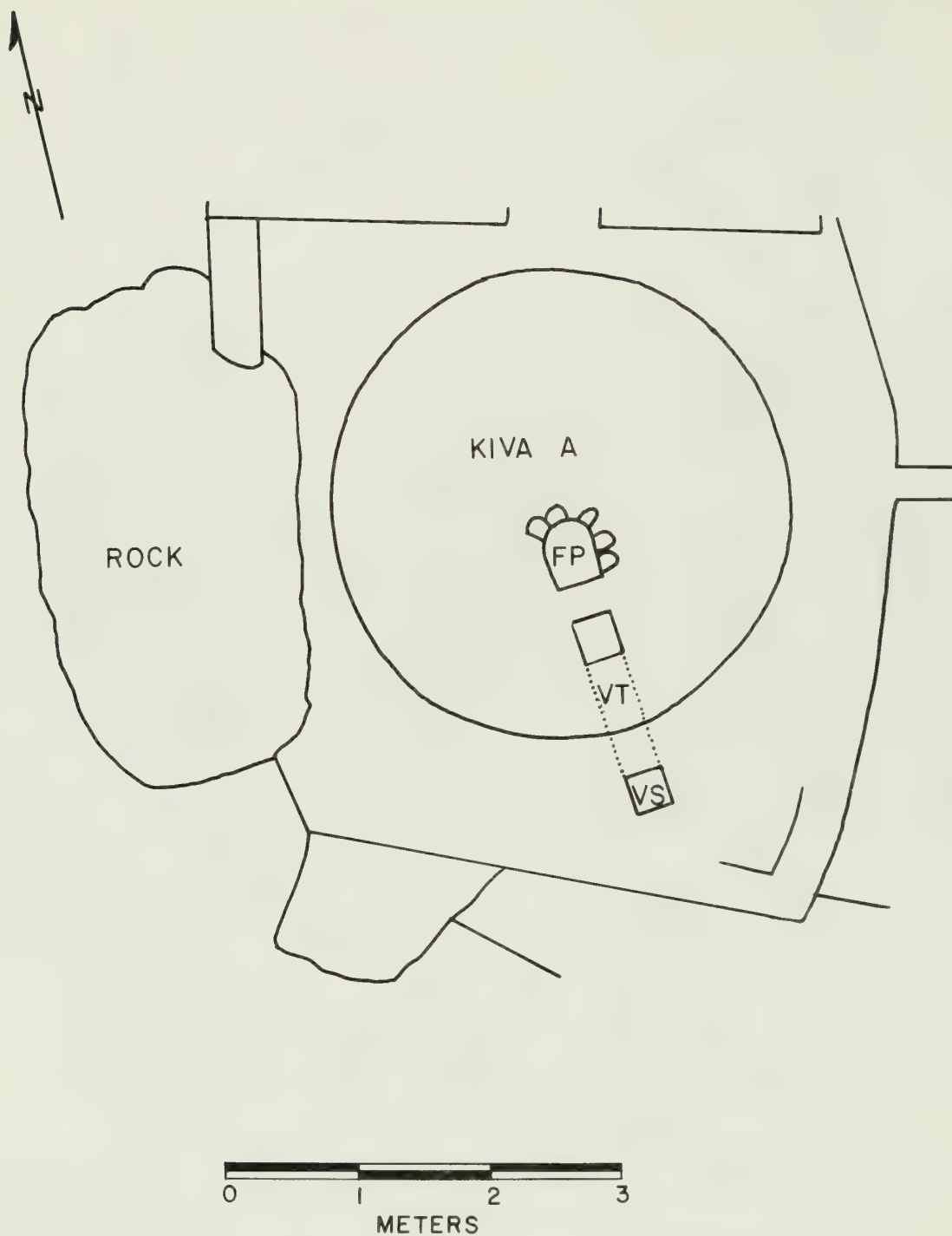


Figure A.70. Bc 54, rough sketch of Kiva A (Chaco Center Archives #2086c).

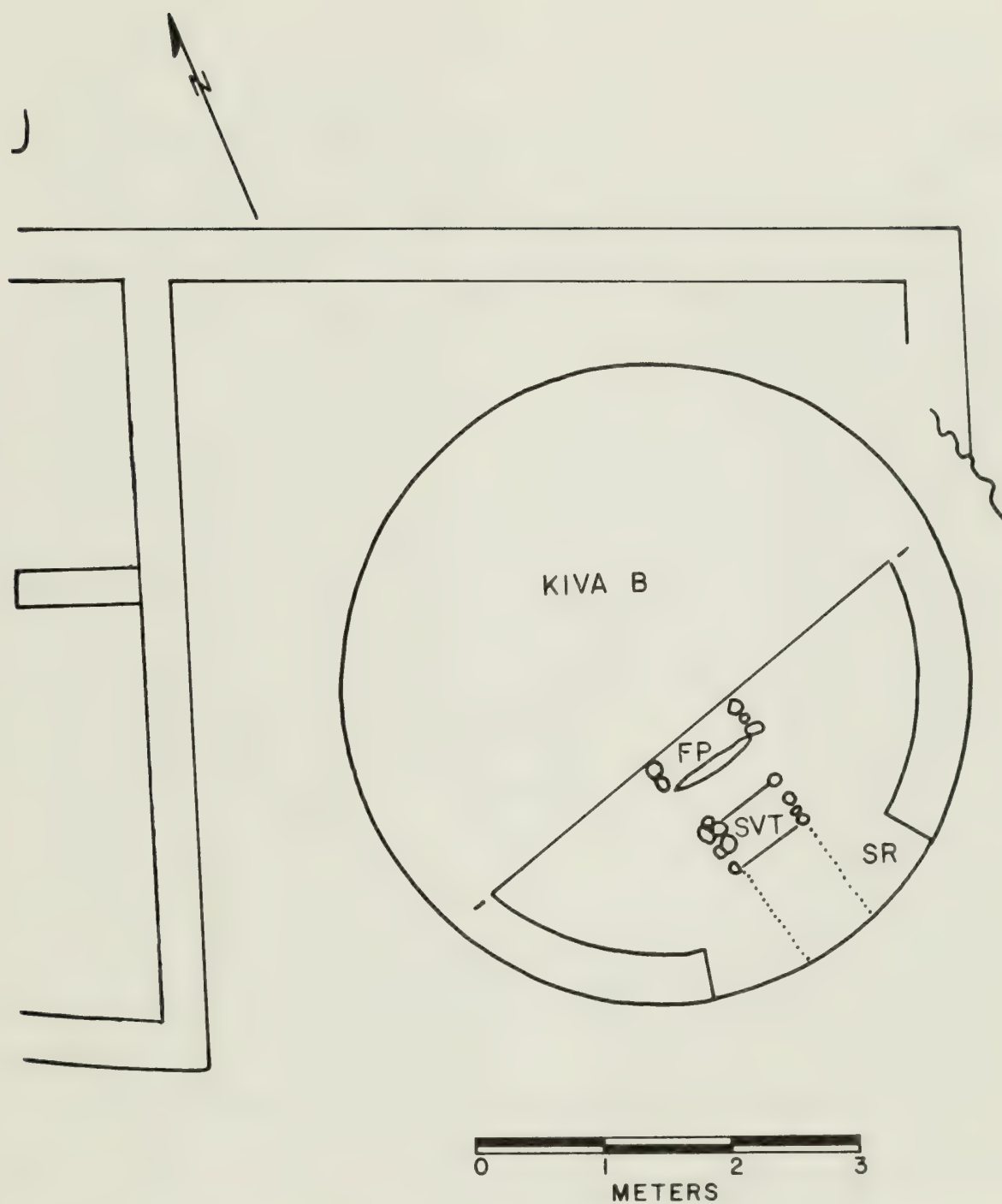


Figure A.71. Bc 54, rough sketch of Kiva B (Chaco Center Archives #2086c).

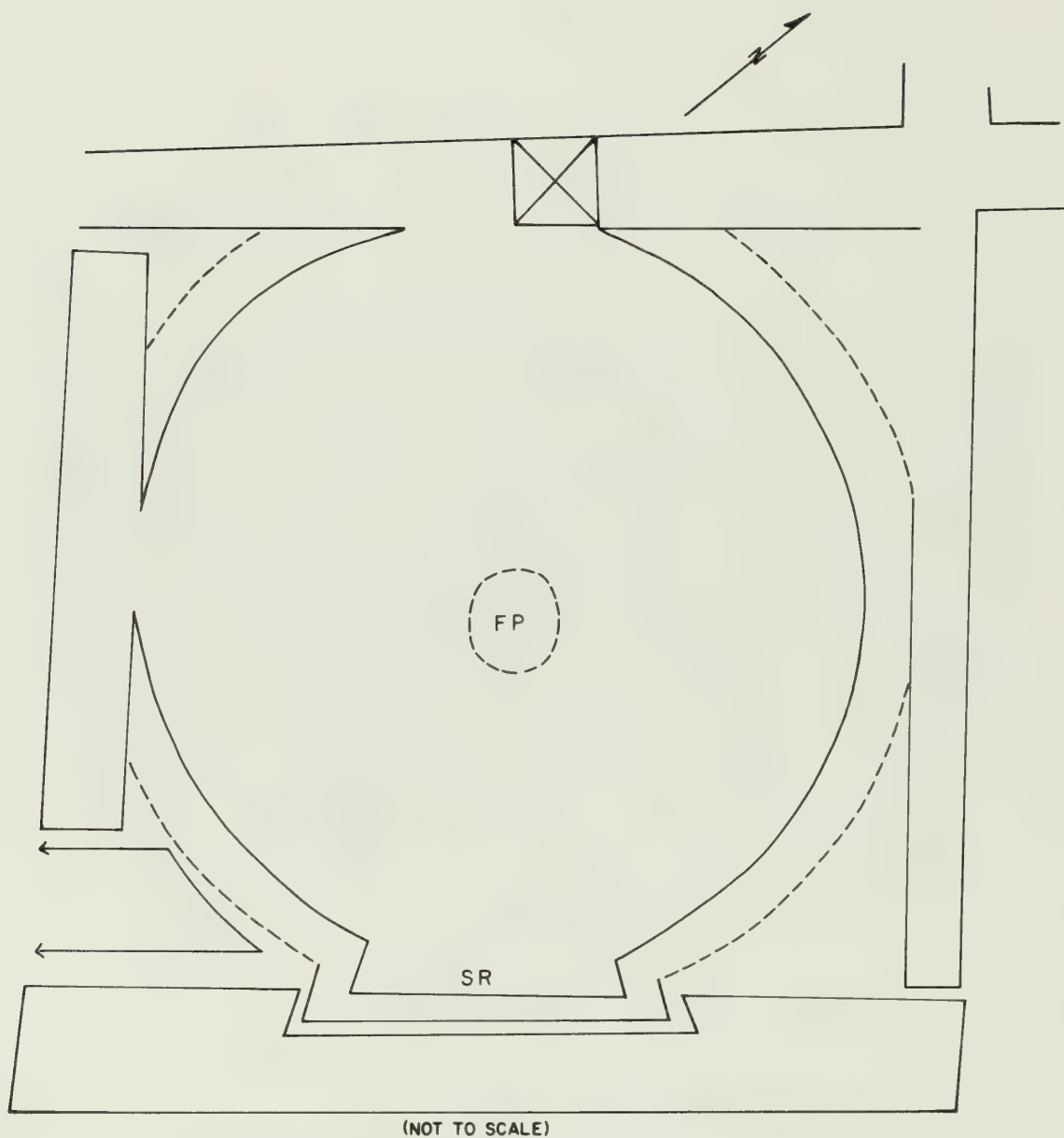


Figure A.72. Bc 57, rough sketch of Kiva B.

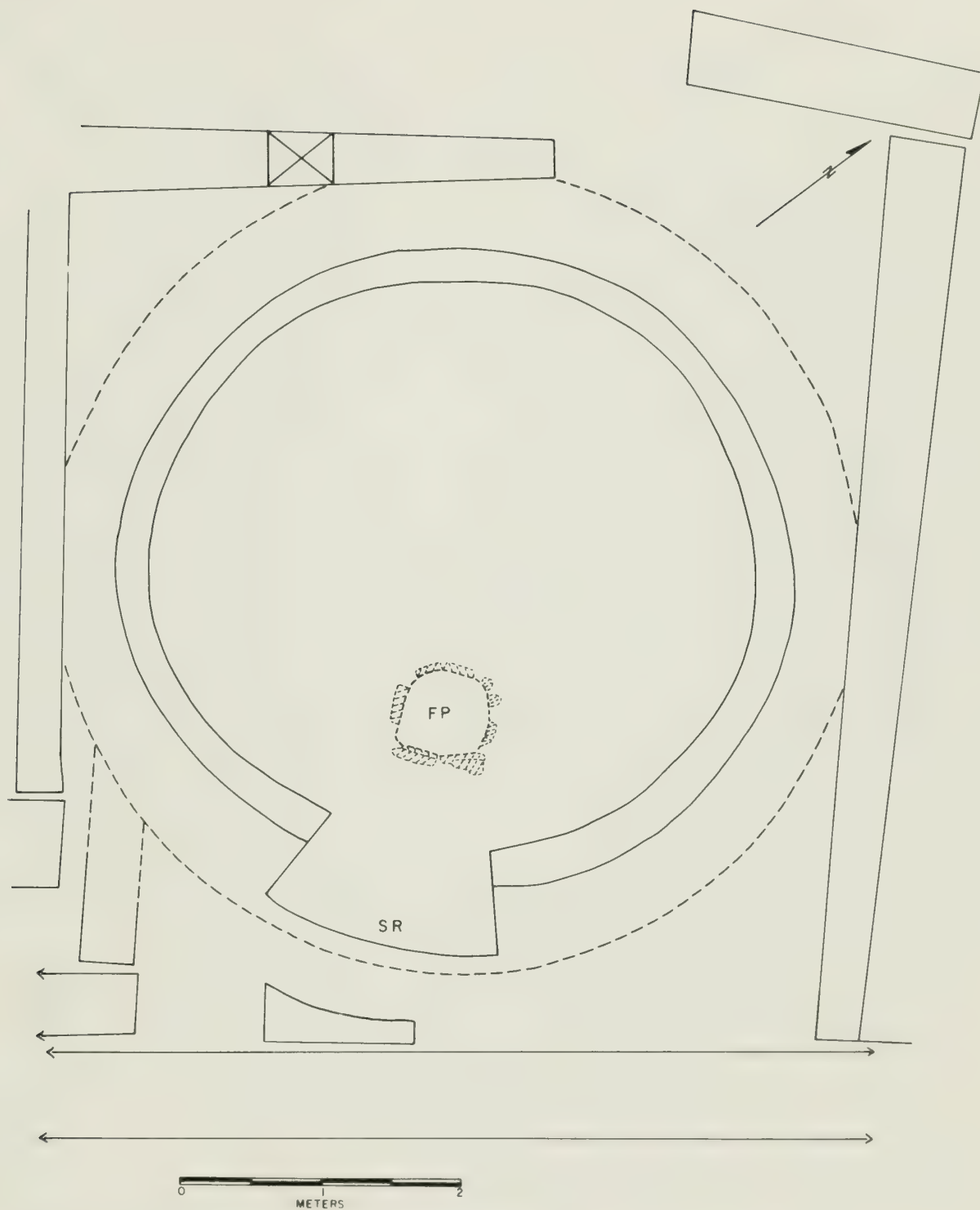


Figure A.73. Bc 57, rough sketch of Kiva C.

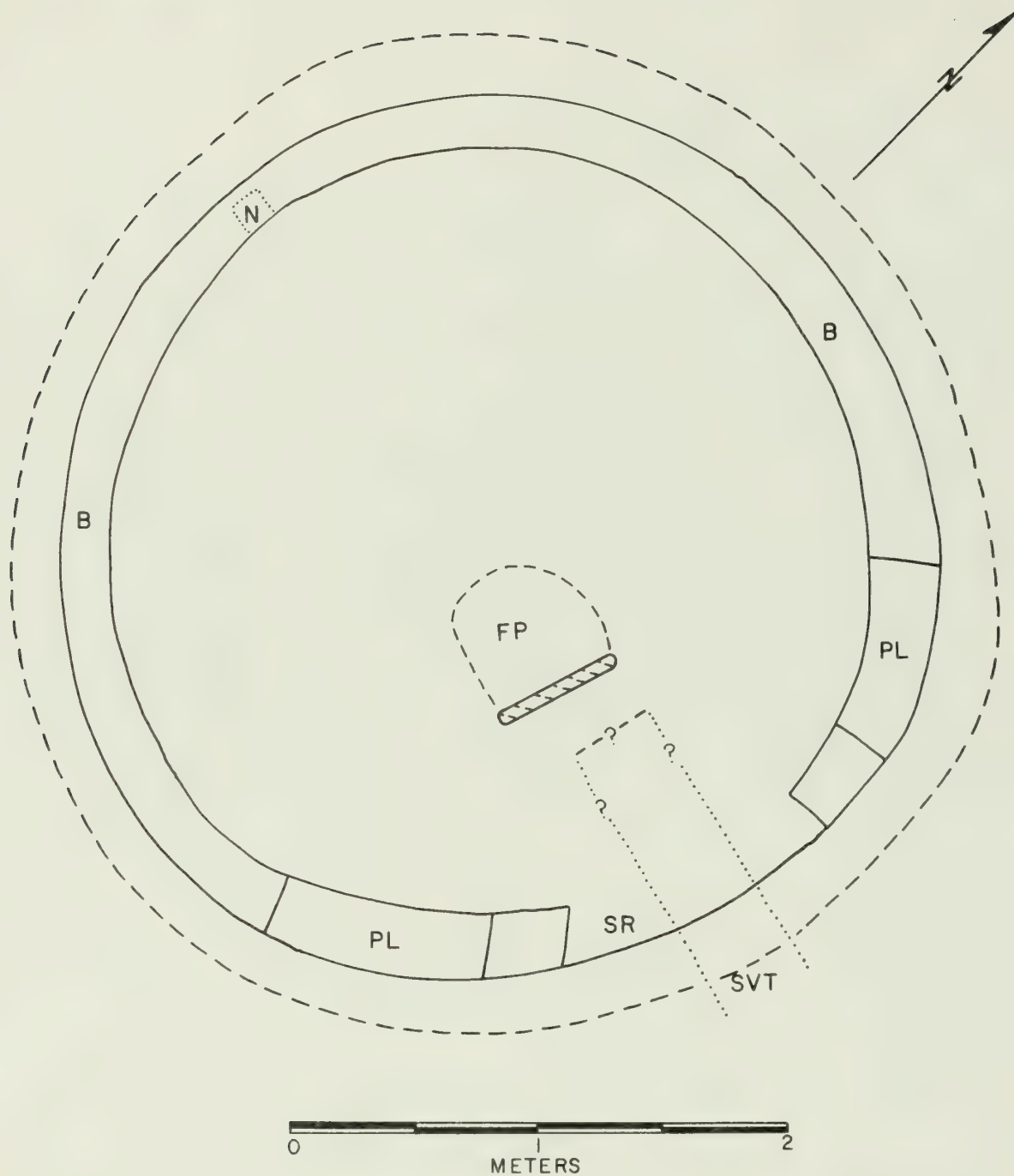


Figure A.74. Bc 58, rough sketch of Kiva A.

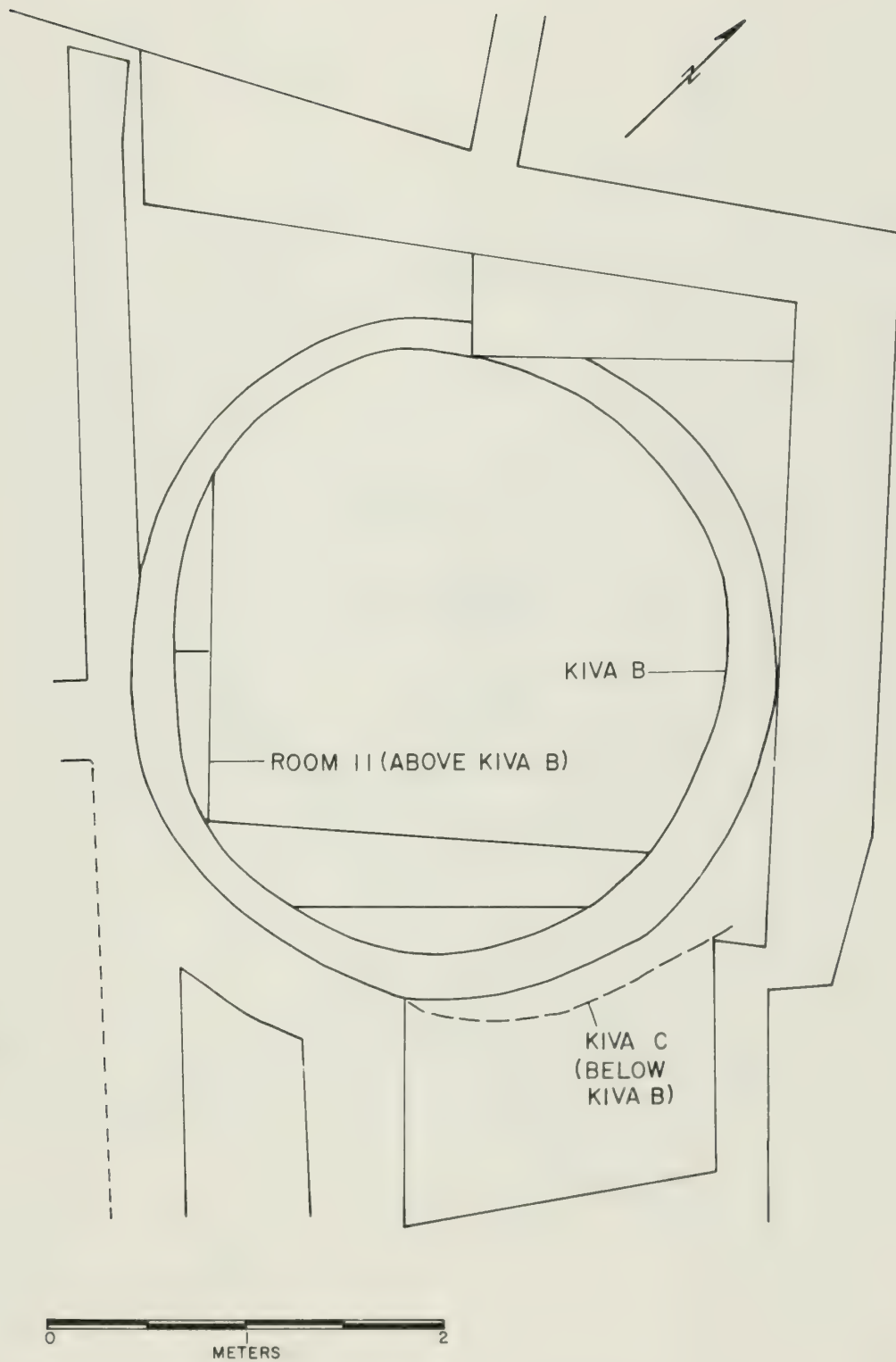
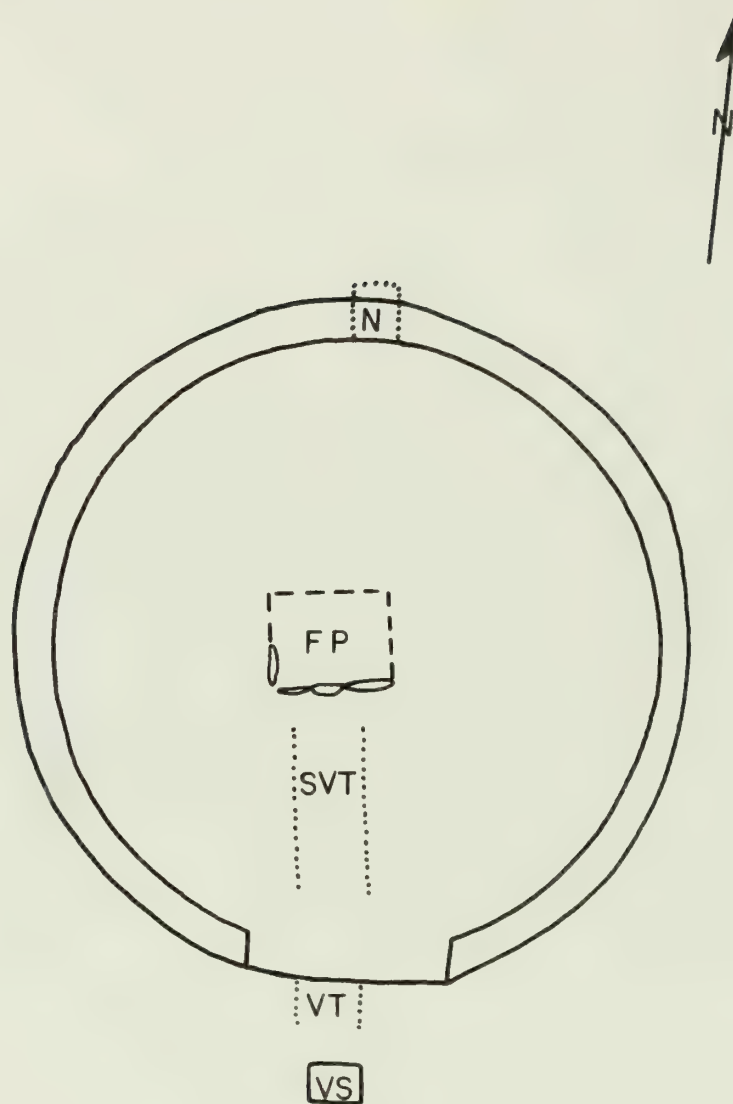
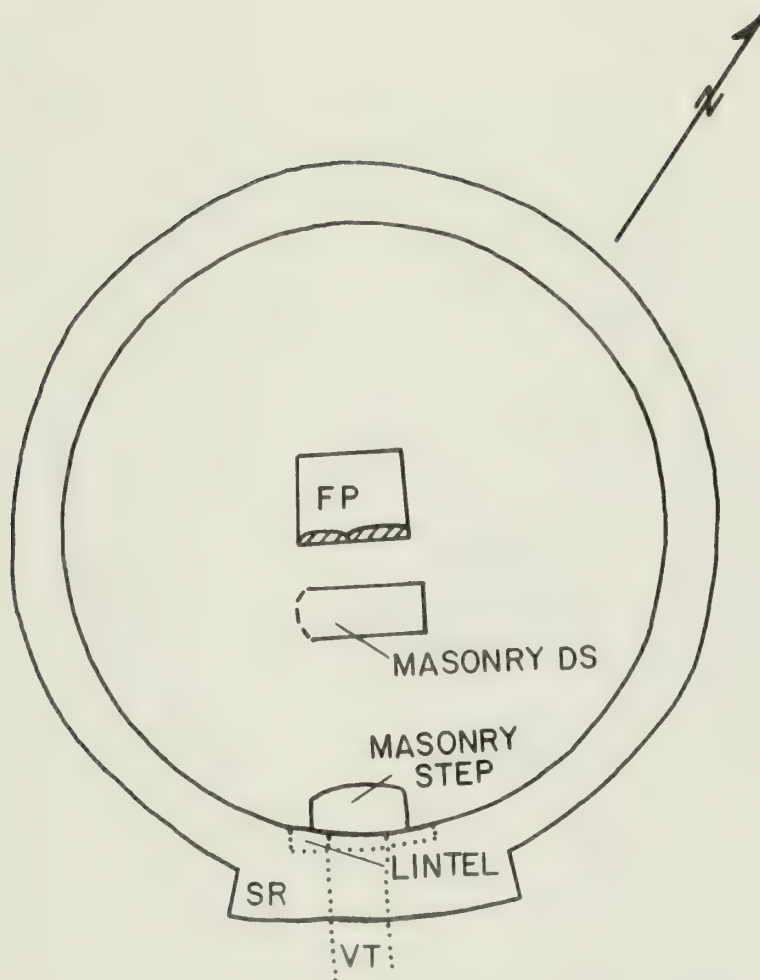


Figure A.75. Bc 58, rough sketch of Kiva B.



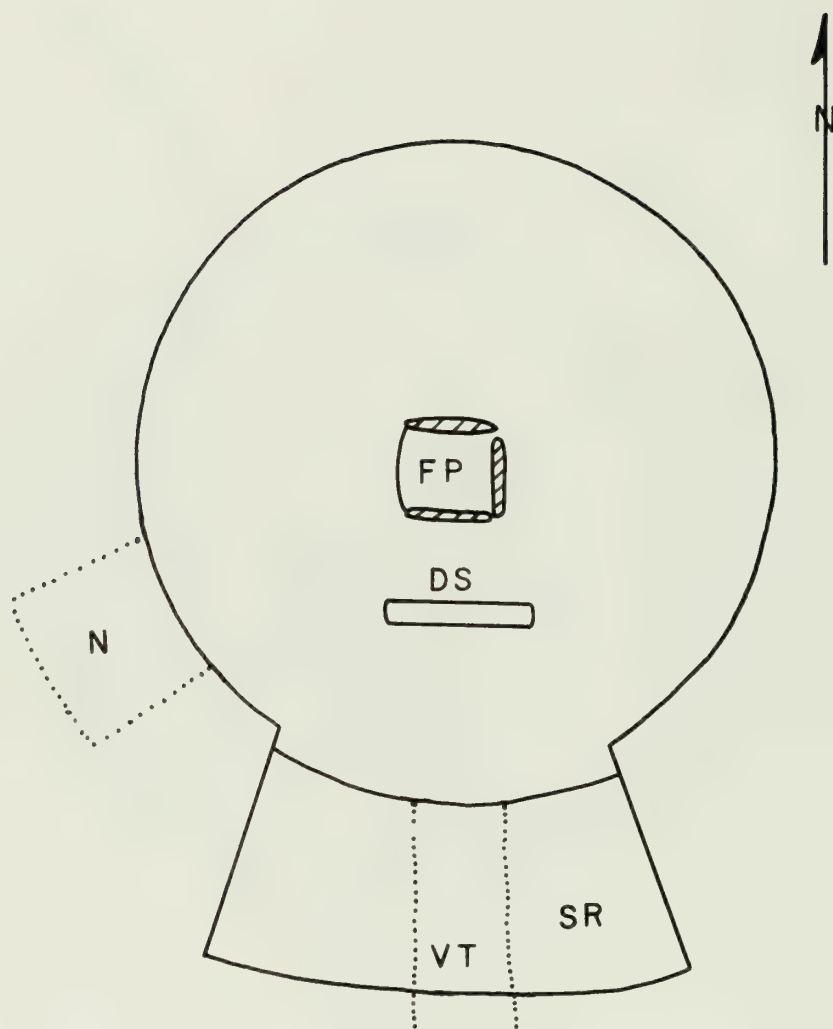
(NOT TO SCALE)

Figure A.76. Bc 59, rough sketch of Kiva 1 (after Trueell 1982).



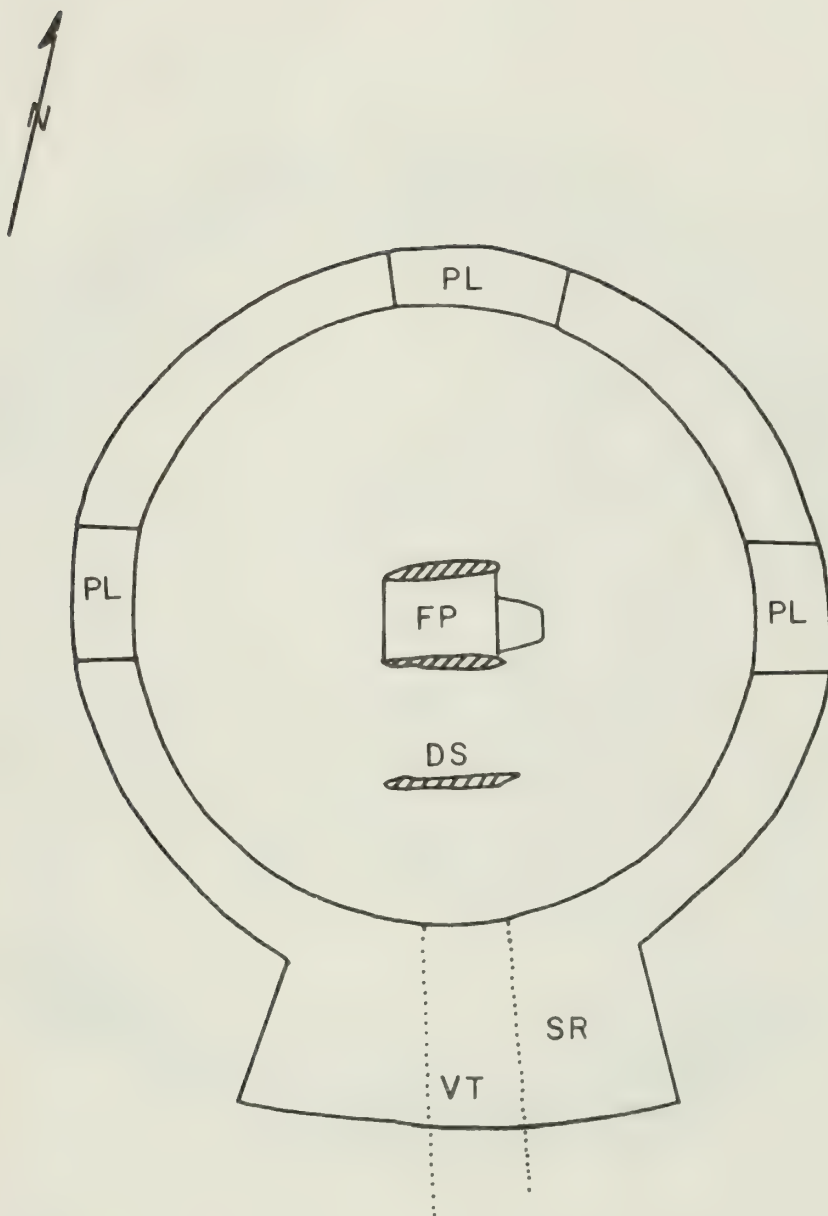
(NOT TO SCALE)

Figure A.77. Bc 59, rough sketch of Kiva 2 (upper floor) (after Truell 1982).



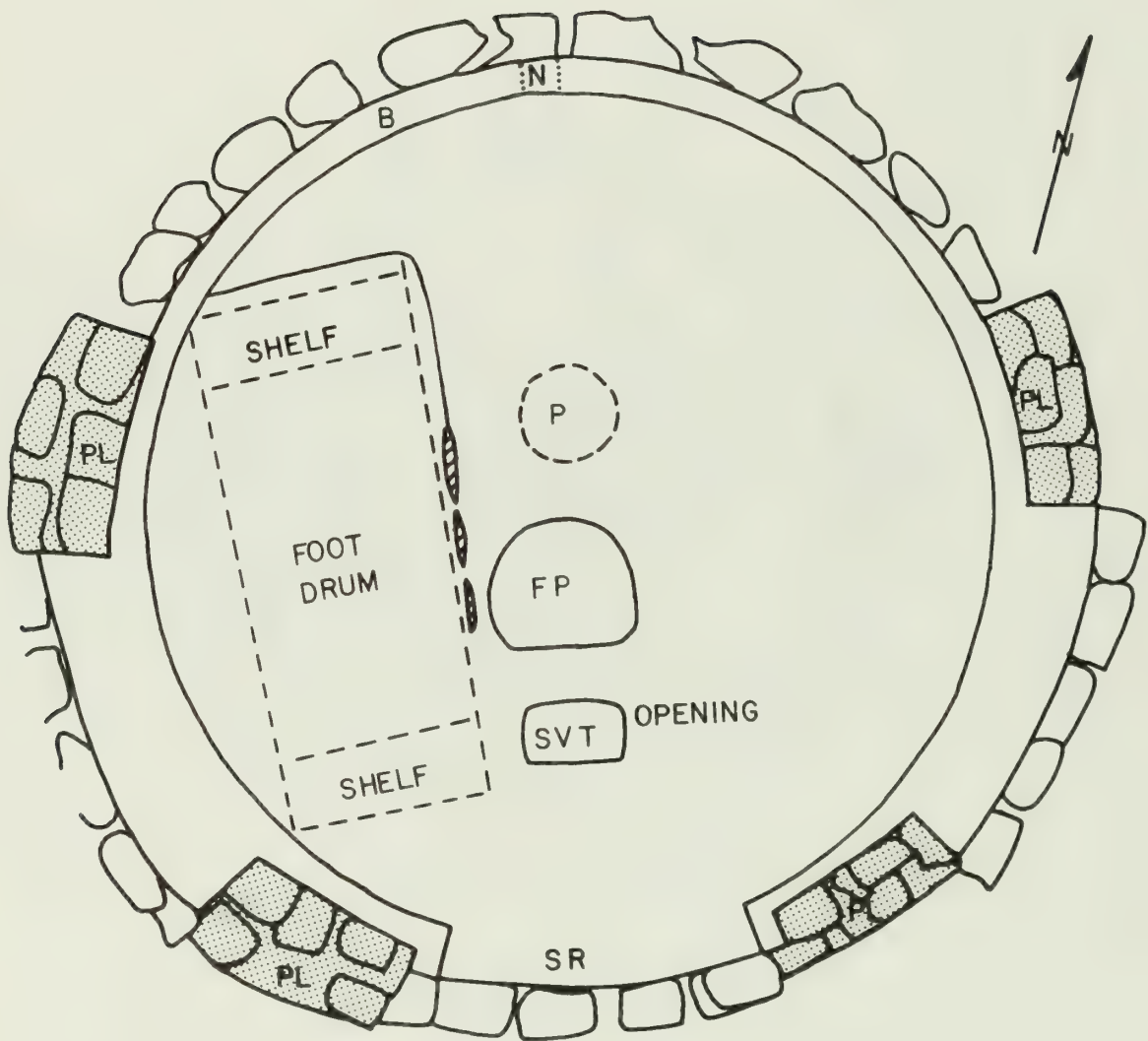
(NOT TO SCALE)

Figure A.78. Bc 59, rough sketch of Kiva 3 (after Truell 1982).



(NOT TO SCALE)

Figure A.79. Bc 59, rough sketch of Kiva 4 (after Truell 1982).



(NOT TO SCALE)

Figure A.80. Bc 59, rough sketch of Kiva 5 (after True11 1982).

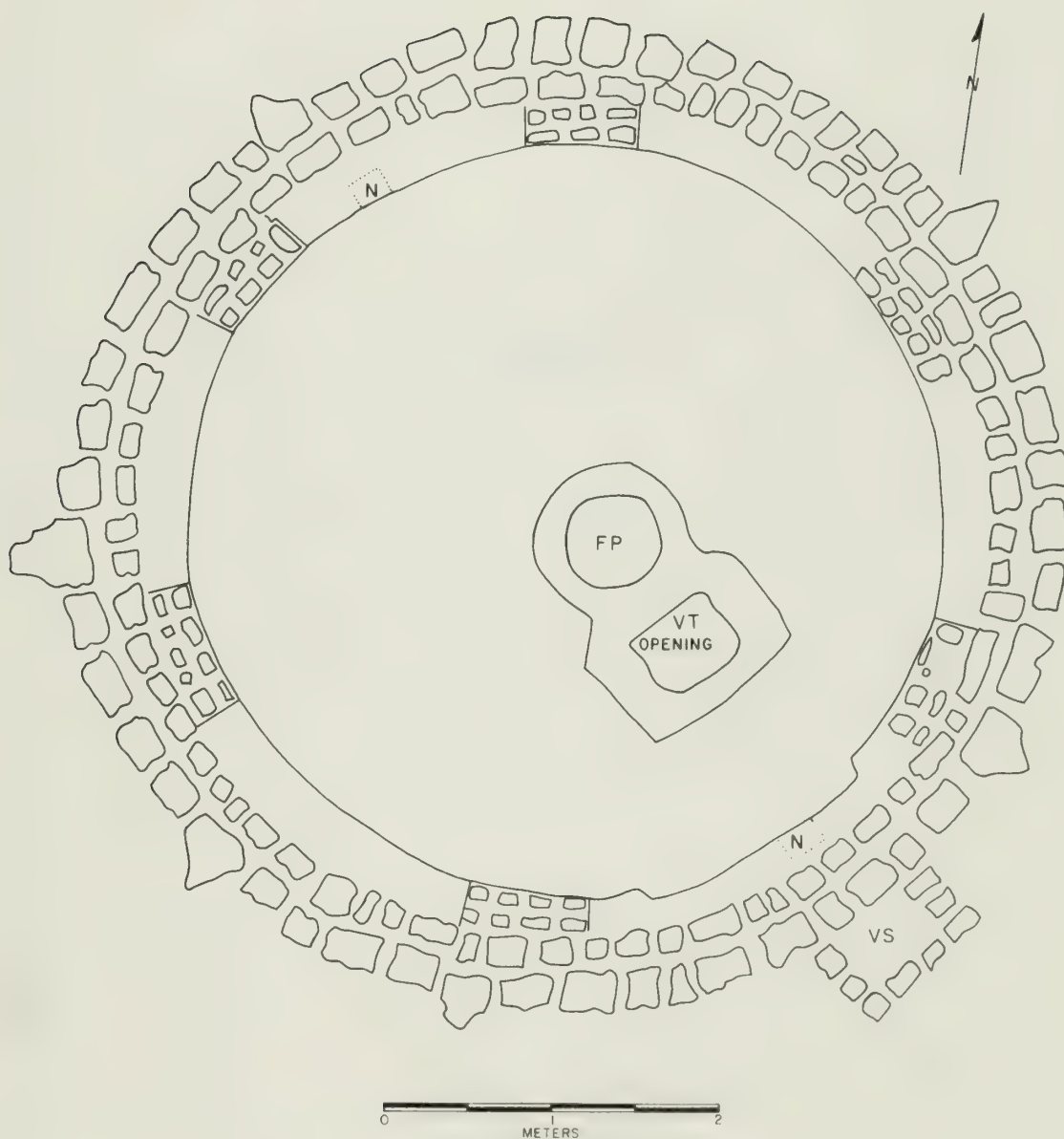


Figure A.81. Bc 236, Kiva (after Bradley 1971).

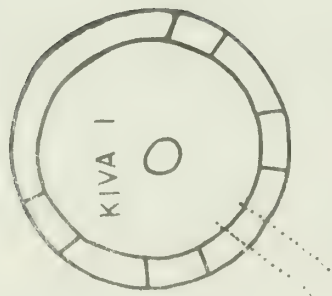


Figure A.82. Bc 362, Kiva 1 (after Vivian and Mathews 1965).

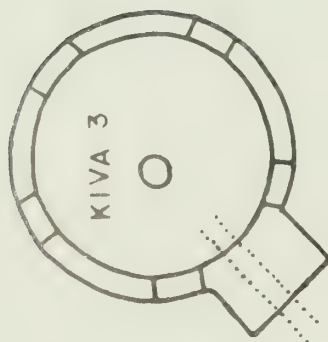


Figure A.83. Bc 362, Kiva 3 (after Vivian and Mathews 1965).

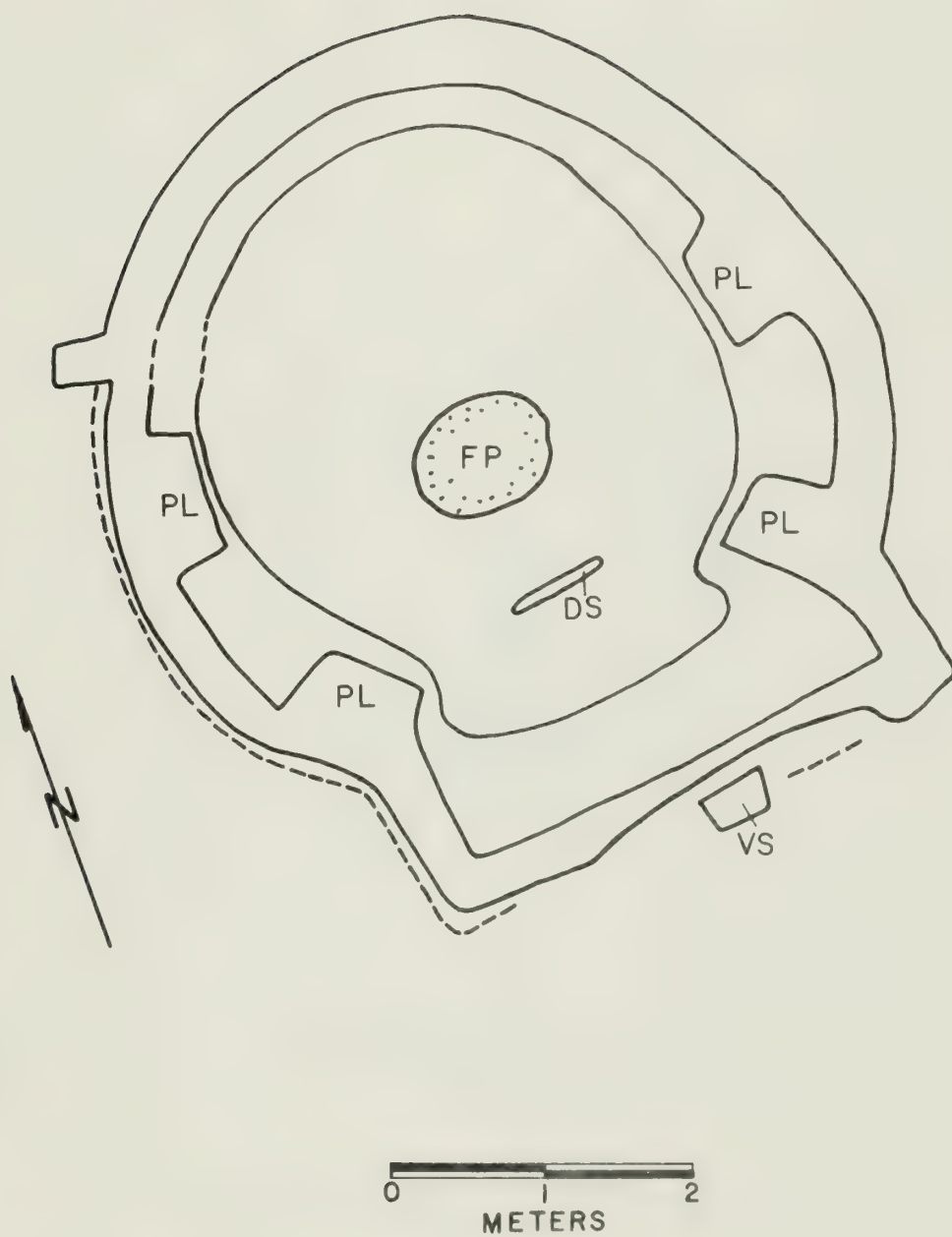


Figure A.84. Leyit Kin, Kiva B.

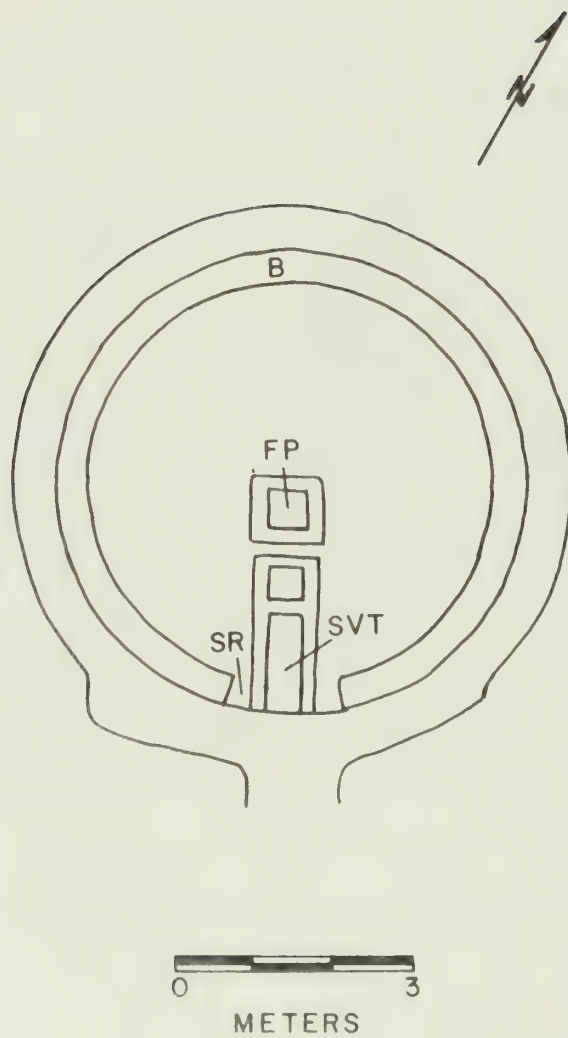


Figure A.85. Lizard House, Kiva C.

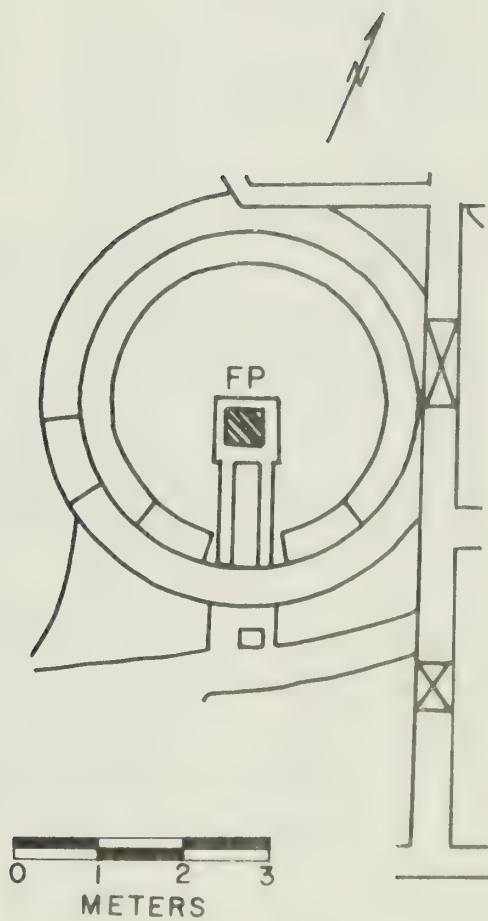


Figure A.86. Lizard House, Kiva A (after Maxon 1963).

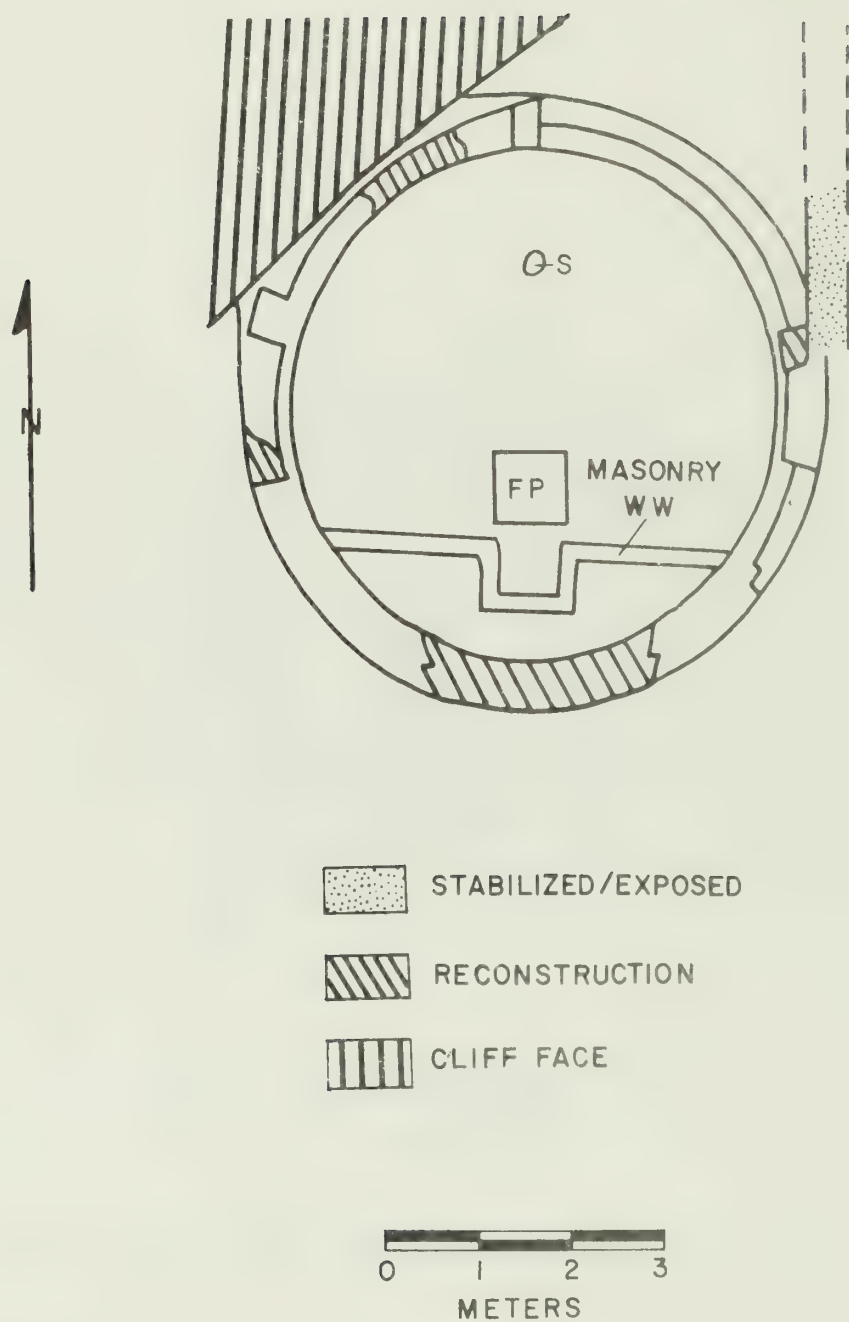


Figure A.87. Gallo Cliff Dwelling, Kiva (after Chaco Center Archives #2149).

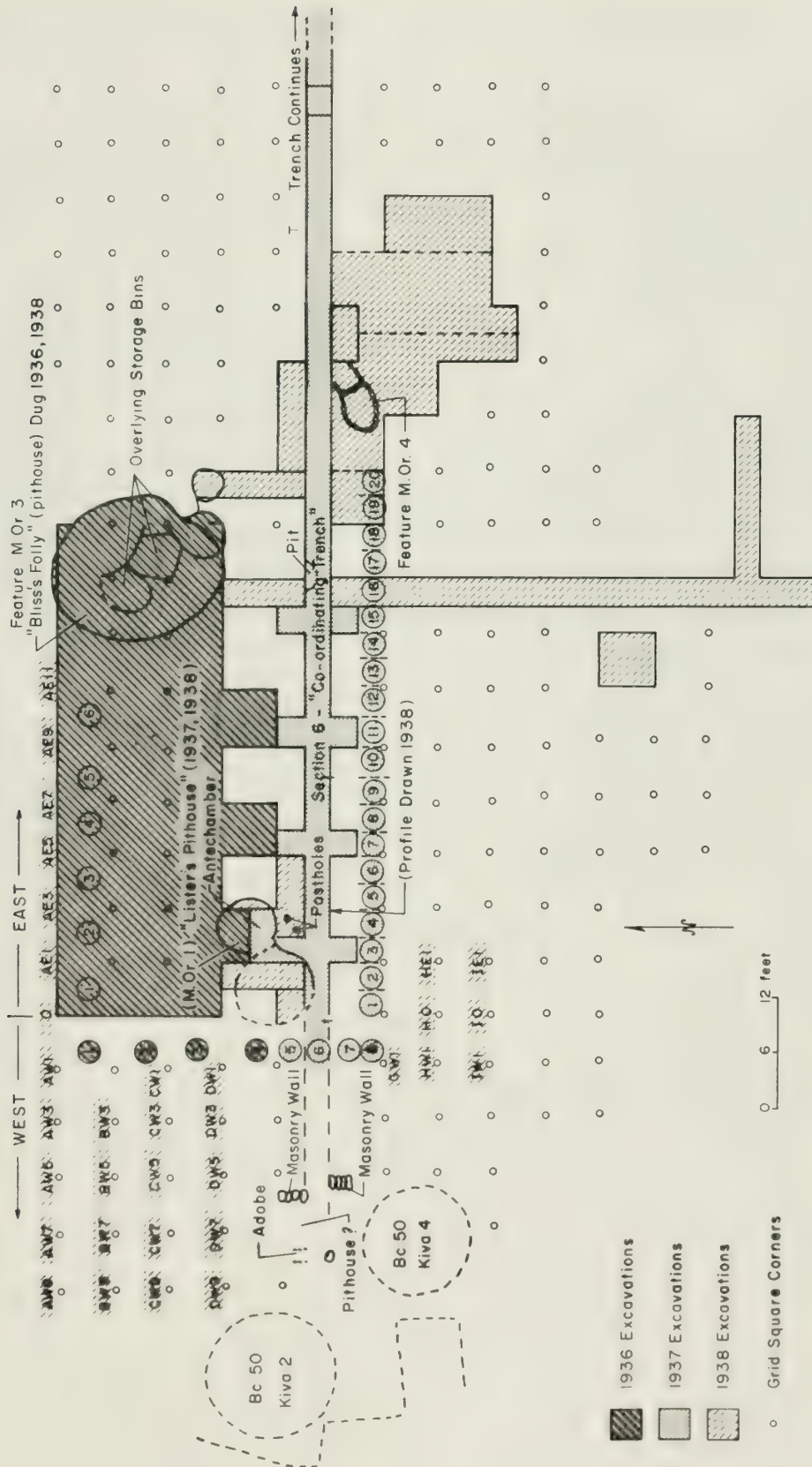


Figure A.88. Bc 90/91 Trash Mound, showing different grid systems used and postures encountered (1936 through 1938 excavations).

Table A.1. A.D. 500s-early 700s storage cist descriptive data (ramada areas not included).

* below = dimensions below the bench or lateral shelf, equivalent with floor level measurements.
above = " above " " "

Table A.1. continued.

| Provenience | Length or Diameter (m) | Width(m) | Maximum Depth(cm) | Floor Area(m ²) | Bench wide/tall(cm) | Floor & Features | Wall Construction | Cist Shape & Comments |
|--|-------------------------|-----------|--------------------------|-----------------------------|---------------------|--|--|-----------------------|
| (Shabik'eshchee Village [29SJ1659] bins listed N. to S. by cluster association.) | | | | | | | | |
| 29SJ 1659 Bin 23 (Isolated) | below = ? above=2.44 | ? 2.03 | 86.4 | est.3.92 | 27.9/25.4 | Plaster-continuous with bench face pl. | Upright slab-lined (some missing) | Circular |
| " Bins 31, 32 (cluster - house association (unknown)) | | | | | | | | |
| Bin 31 | 1.68 | | 76.2 | est.2.22 | - | Plaster | Plastered native soil | Irreg. circular |
| Bin 32 | 1.78 | 1.37 | 76.2 | est.1.95 | - | Plaster | Upright slab-lined (entire) | Irreg. circular |
| " Bin 30 (Isolated - assoc. with house?) | 1.68 | 1.61 | 76.2 | est.2.13 | - | Plaster | Part upright slabs & part plaster | |
| " Bin 29 | 2.08 | 1.92 | 30.5 | est.3.14 | - | Plaster | Upright slab-lined (entire?) | Irreg. oval |
| " Bin 28 | 2.03 | 1.92 | 60.9A | est. 3.06 | - | Plaster | Plaster & slabs (slabs never entire?) | Irreg. circular |
| " Bin 27 (Bins 29, 28, and 27 may have been associated with one another; house association not clear) | 1.37 | 1.31 | 60.96 | est.1.41 | - | Heavy plaster | Plastered native soil | Circular |
| " Bins 34, 36, 37, 38, 39, 40, 41 (cluster?) | | | | | | | | |
| Bin 34 | 1.59 | 1.52 | 17.8 | est.1.90 | - | Flagstones(entire) | Upright slab-lined (entire) | Irreg. circular/oval |
| Bin 36 | 1.83 | 1.52 | 76.2* | est.2.20 | - | ? | Originally slab-lined (all missing) | Oval |
| Bin 37 | 1.73 | 1.52 | 48.3 | est.2.07 | - | ? | Up. slab-lined (some missing) | Irreg. oval? |
| Bin 38 | 1.07 | 0.91 | 61 | est.0.78 | - | Plaster | Upright slab-lined (entire) | Oval |
| Bin 39 | 1.83 | 1.68 | 91.4 | est.2.42 | - | Plastered caprock | (Postholes around periphery at ground level) | |
| Bin 40 | 1.47 | 1.37 | 76.2 | est.1.58 | - | Flagstones(entire) | Upright slab-lined | Oval; deepest example |
| Bin 41 | 2.13 | 1.78 | 61 | est.3.00 | - | Flagstones(entire?) | Originally slab-lined (all missing) | Circular? |
| (Roberts [1929:103] notes that it looks as if bins 36, 39, 40 and 41 were built and used at the same time while 34, 37, 38 and 41? were built later. He based this on the relationship of ground surface and pit slab tops. There was an accumulation of occupational debris between the occupational surfaces of the first and second groups of cists.) | | | | | | | | |
| " Bin 42 (Associated with House 0?) | 1.52 | 1.28 | 61 | est.1.54 | - | Plaster | 2 upright slabs(rest missing?) | Irreg. oval |
| 29SJ 1659 Bin 43 | below=2.03 above = ? | 1.98 ? | 60.96 45.72 106.68 | est.3.16 | 30.5/61 | Cap rock | Lower = upright slabs Upper=slabs(most missing) | Circular |
| " Bin 44 | 2.59 | 2.44 | 47.7 | est.4.97 | - | Plastered | Plastered native soil | Irreg. circular/oval |
| " Bin 45 | 1.78 | | 45.7 | est.2.48 | - | Plaster | Upright slabs(alot missing) | Irreg. circular |
| " Cist 3 | 1.21 | 1.00 | ? | est.0.96 | - | Flagstone & adobe | Upright slab lined | Oval |

(Cists 3 - excavated by Chaco Center (shallow) plaster in 1973 above Pith. Y;
Cist 4, next to 3, tested the same year).

* below = dimensions below the bench or lateral shelf at floor level.
above = " " " " " " " " " " " "

NOTE: Some of the bins not listed above from Shabik'eshchee Village have been associated with late A.D. 700s-800s construction.

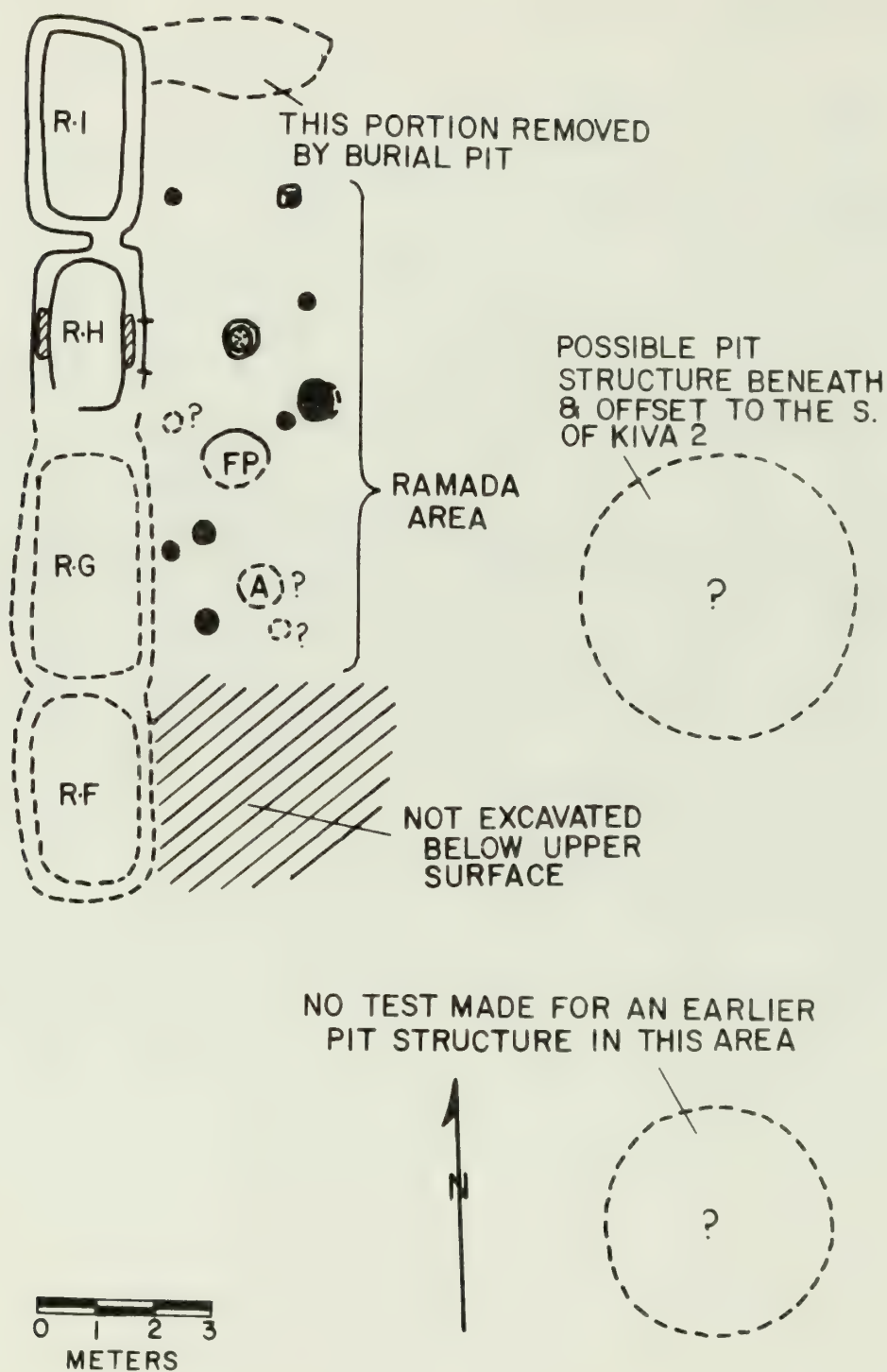


Figure A.89. Rough sketch of the late A.D. 700s-900s configuration of the Three-C site.

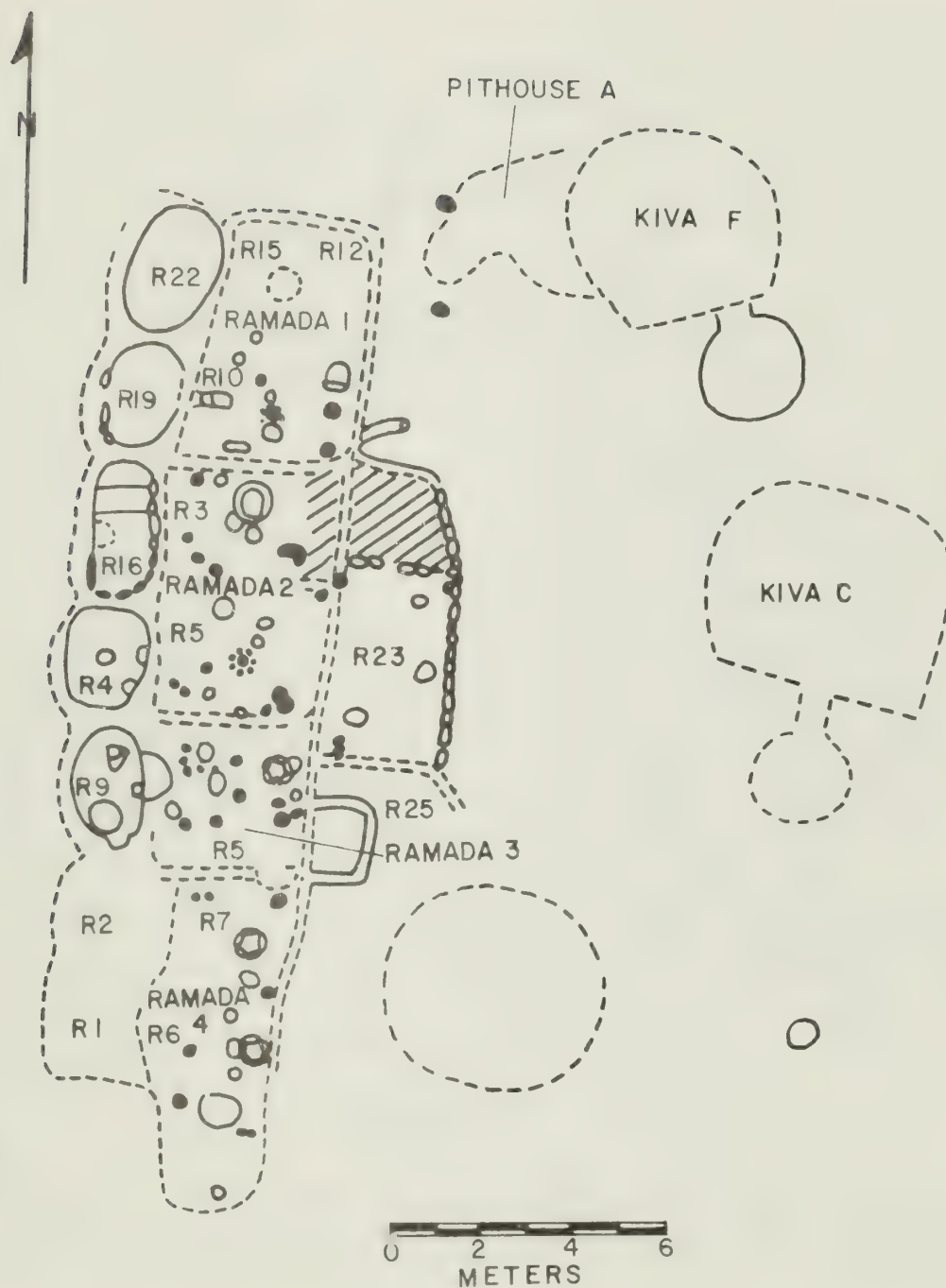


Figure A.90. Site 29SJ 627, first construction episode in the late A.D. 700s/early 800s (after Truell 1981).

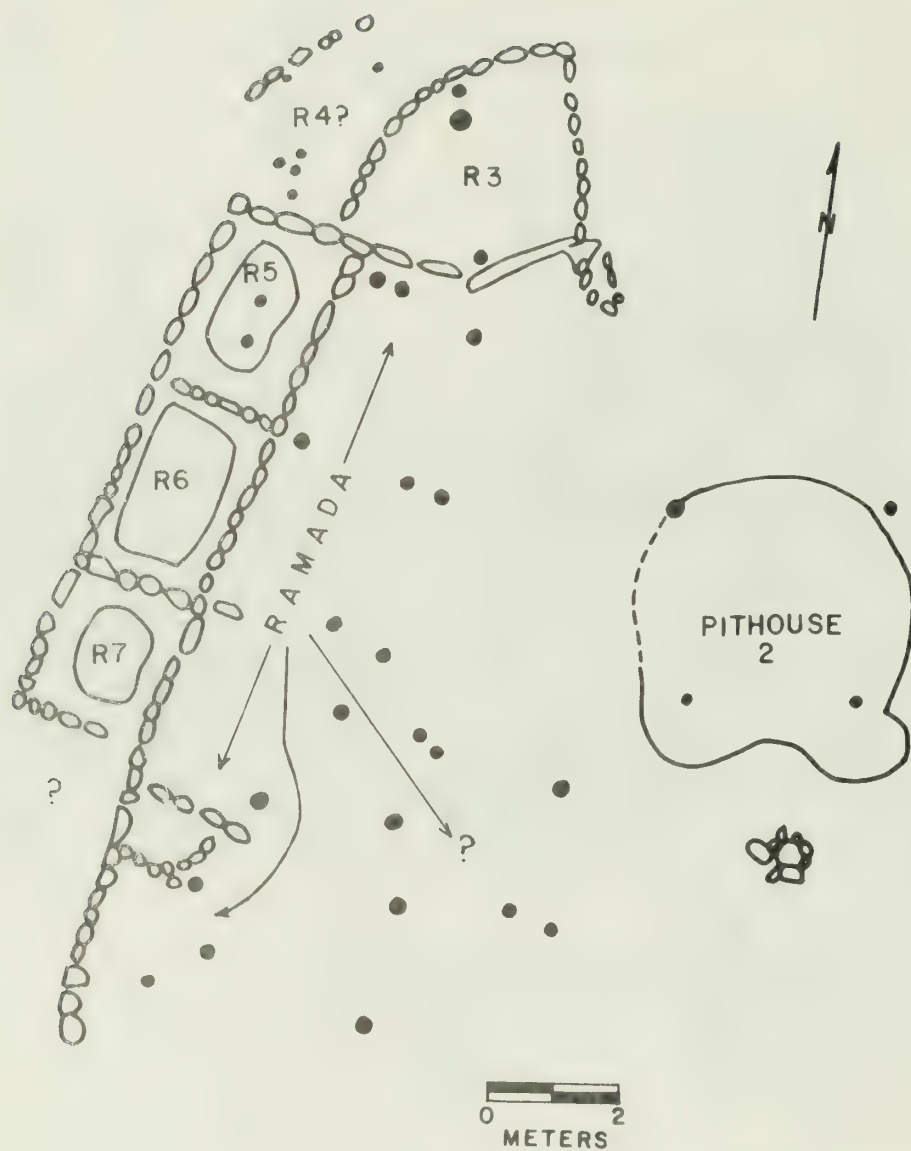


Figure A.91a. Site 29SJ 629, Phase I, A.D. 875-925 (after Windes 1978b).

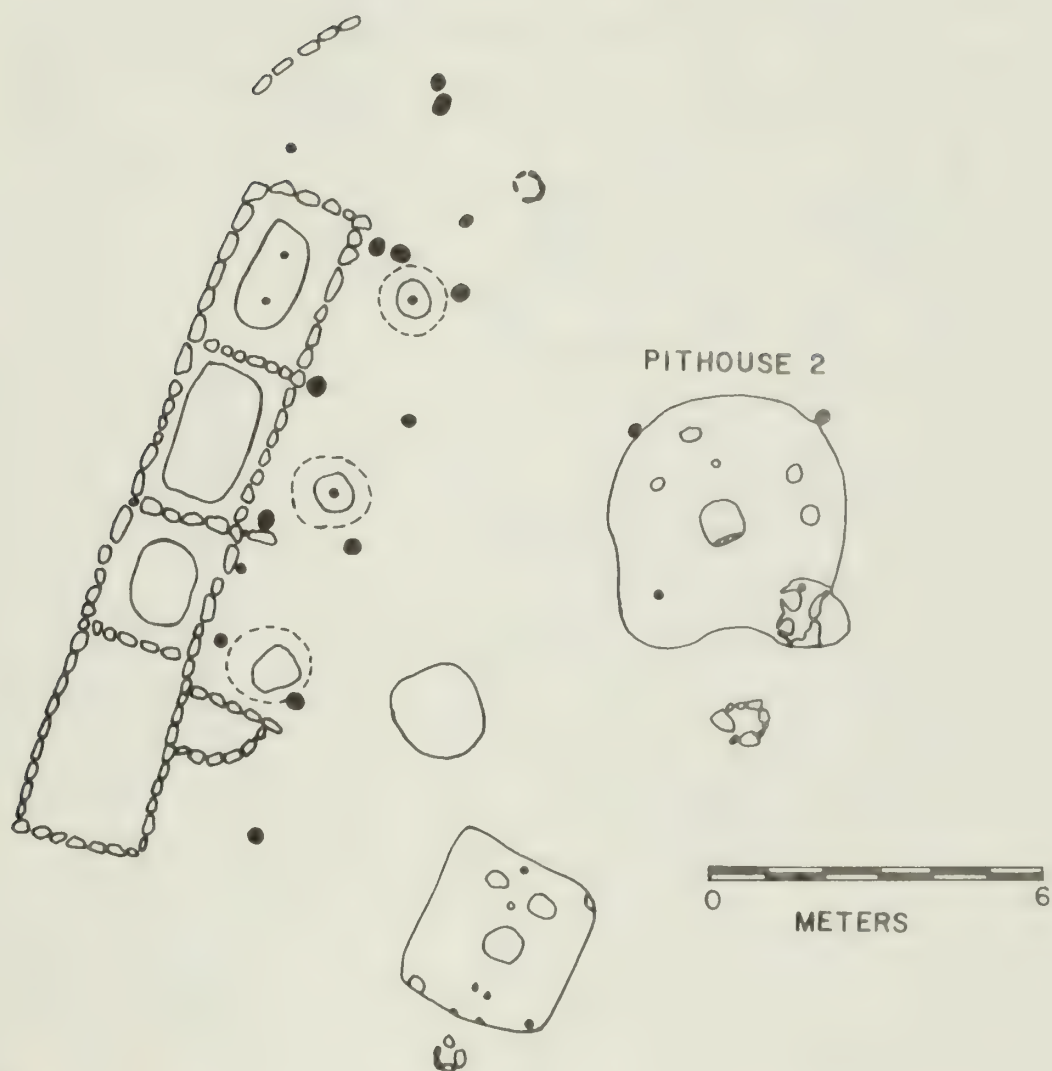


Figure A.91b. Site 29SJ 629, Phase II, A.D. 925-975 (after Windes 1978b).

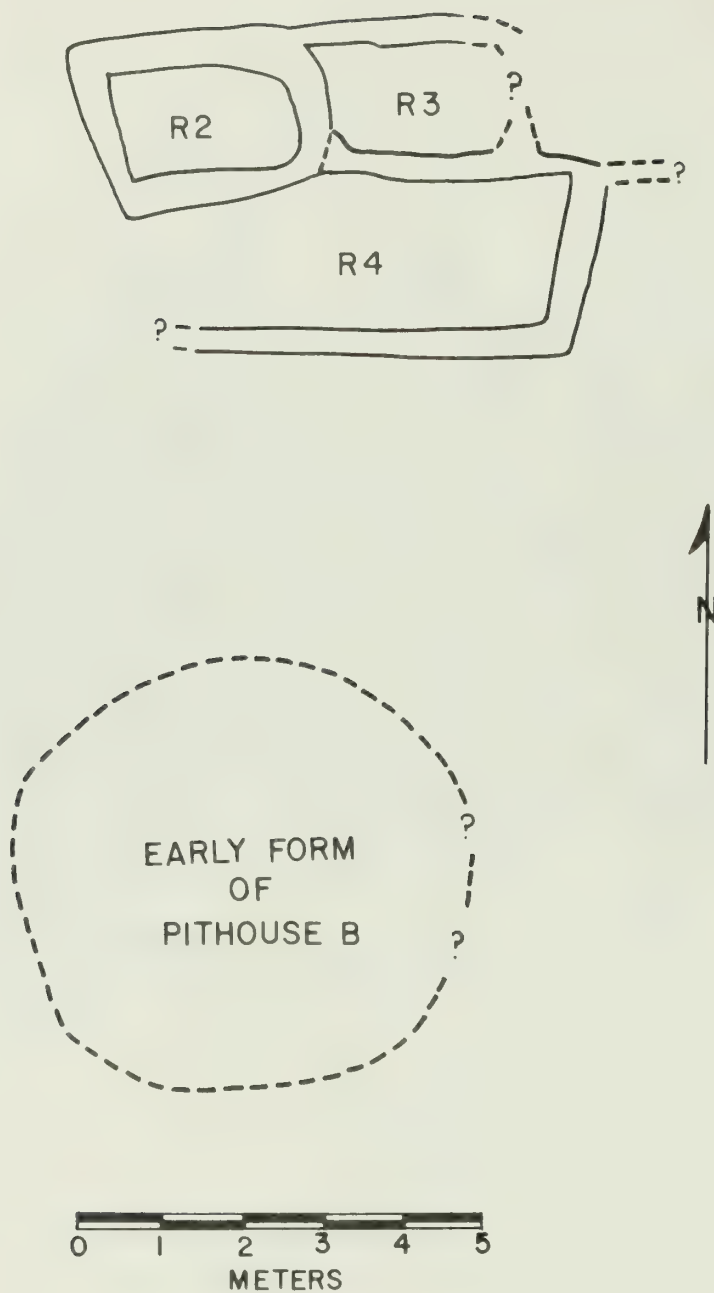


Figure A.92. Plan view of the "known" extent of the late A.D. 700s-early 900s habitation at House 1, 29SJ 1360 (after McKenna 1983).

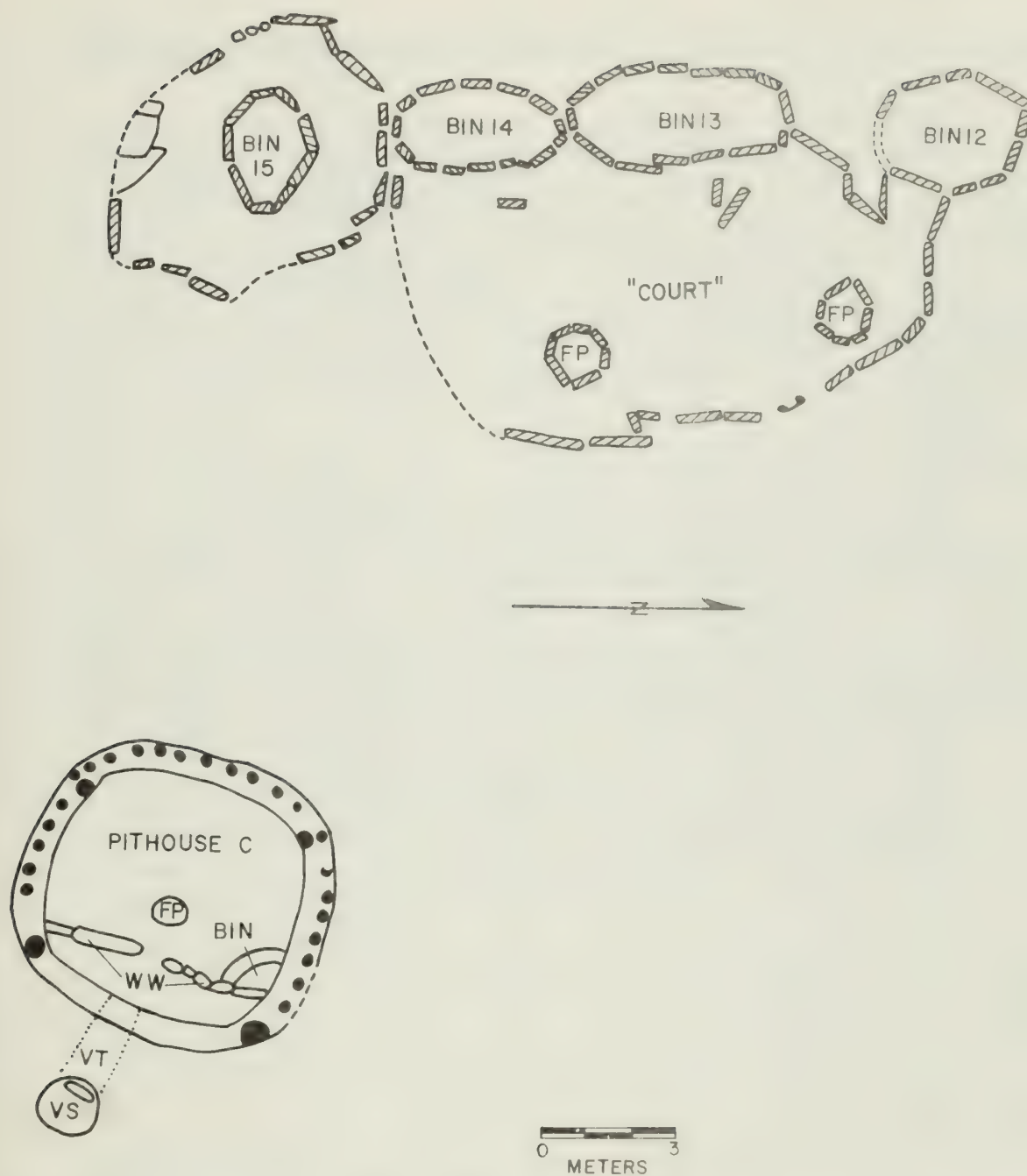


Figure A.93. Shabik'eshchee Village, House C Complex (after Roberts 1929).

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Table A.2. Middle 700s-early 900s storage room information (ramada areas not included).

| Provenience | | Length or Diameter(m)* | Width(m) | W/L | Max. Floor Depth | Floor Area(m ²) | Bench wide/tall(cm) | Floor & Features | Wall Construction | Cist Shape |
|---|---|--------------------------------------|---------------------|-----|------------------|-----------------------------|----------------------|--|--|---------------------------|
| 29SJ299 | Room 12 | 2.20 | 1.11-1.26 | .57 | 24 | 2.66 | - | Grav clay plaster | Turtlebacks&upright slabs | Rectangular |
| " | Room 13 | 2.79 | 1.34 | .48 | 9 | 3.70 | - | Thick brown clay | Upright slabs set in trench | Irreg. rect.-partial |
| " | Room 14 | est.2.65? | 1.18 | | 10-15 | ? | ? | ? | Upright slabs (a few) | Subrectang.-partial |
| " | Room 15 | 1.82 | .80-.90 | .49 | 31 | 1.6 | ?, 2 phs. | Clay;dish-shaped | Thick plaster;3 up. slabs | Irreg.rect.,dished X-sect |
| (These rooms located immediately NW of continuous ramada surface) | | | | | | | | | | |
| 29SJ625 | Room H | below=est.2.62 (above=3.35) | est.1.22 (est.1.83) | .55 | ? | est.3.07 (upper=6.33) | 22 x 46 | Native soil?, not found? | Pl.6up. Sl. below bench; Pl. above; 1 step? E. wall | Rect. |
| " | Room I | below=est.3.23 (above=3.66) | est.1.37 (est.1.91) | .52 | ? | est.4.37 (upper=7.13) | 21 x 46 | ?,2 later nas.walls | Rebuilt, masonry S. end | Part dug; oval |
| (There are probably earlier rooms like I and H beneath Rooms G and F but not dug; Vivian places these two rooms in the late A.D. 700s or early A.D. 800s.) | | | | | | | | | | |
| 29SJ627 | Rm 9,Fl 4 | below=2.34 (above=?) | 1.68 | | 65 | 3.53 | + | Clay;2 cists,step? | S.wall passage? | Oval |
| " | Rm 4,Fl 2 | below=2.21 (above=?) | 1.78 | | 65 | 3.88 | + | Clay;fpt.*cist,step | Pl.6up.Sl.,step into E.wall? | Sub-square |
| " | R 16,Fl 4 | below=2.80 (above=?) | 1.40-1.45 | | 60 | 4.06 | +top plast. | Clay,collared fpt. | Slab lining entire | Irreg. rect. |
| " | R 19,Fl 2 | below=2.12 (above=?) | 1.47 | | 42 | 2.97 | + | Only partially dug | Pl.6 a few Sl. | Irreg. |
| " | R 22,Fl 3 | below=2.70 (above=?) | 1.40 | | 55 | 3.65 | + | Clay;burned spots | Pl.6up.Sl. | Irreg. |
| 29SJ629 | Room 5 | below=1.09 (above=2.78) | 0.90 (1.72) | .62 | unk. | 1.60 | 36 x 20-30 | Sandy adobe;2 phs | Native soil; no slabs or pl. | Oblong oval |
| " | Room 6 | below=2.30 (above=2.86) | 1.30 (1.82) | .64 | unk. | 2.80 | 15-25x 41 | Native soil | Native soil; no slabs or pl. | Rect. |
| " | Room 7 | below=1.40 (above=2.18) | 1.00 (1.80) | .83 | unk. | 1.34 | variable x ? | Not found | Native soil; no slabs or pl. | Circular to oval |
| (Possibly another storage room (beneath Room 8) at the southern end of the room block belonged to this period of site use at 629, but was obliterated by remodeling. The upper walls of the rooms listed above were originally adobe and turtleback walls surfaced with adobe plaster containing spalls. Subsequently these were rebuilt with masonry but stubs of the original walls remain beneath the later construction.) | | | | | | | | | | |
| 29SJ721 | Room 1 | 3.30 | 2.55 | .77 | 13 | 7.0 | - | Smooth native clay | Up. sl.1-2 rows; door-E. side | Rectangular |
| " | (Rm. 1 may be associated with an unexcavated pit structure) | | | | | | | | | |
| " | Cist 3 | 1.04 | ? | | 25 | partial | - | Sandy, not definite | Upright slab lining | Irreg. circular-partial |
| " | Cist 7 | ? | ? | ? | ? | ? | - | (small pit above Cist 4 and Pith. C; only 1 slab remaining in place) | | |
| (NOTE: Cists 1, 2, 4, 5 and 6 are classified by Windes (1976b:16-17) as baking pits, not as rooms. These are crudely constructed pits with interior lining. Upright slabs the tops of which lean outward from the pits centers; wall slabs are burned red and the fill consisted of charcoal, ash and fire cracked rock. All but Cist 2 had flagstone flooring. Floor areas ranged from 0.61 to 1.21 m ² (mean=0.85); 18 to 53 cm deep (mean=35.5 cm). Site 29SJ721 cist examples and Pith. A associated with this period probably date to the mid to late A.D. 700s and are transitional architectural examples with the previous period. | | | | | | | | | | |
| 29SJ724 | Room 2 | below=1.96 (above=ca.2.18) | 1.10 (ca.1.32) | .61 | 83 | 2.17 | 11-23/4-? | Native soil,door | Below bench=adobe pl;above= up.sl.;clay collar-12cmx4cm(W. wall) | Elongate oval |
| " | Room 3 | below=3.05 (above?) | 1.46 | | 50 | 4.32 | none left | Native soil;unlined unburned basin | Plastered native soil | Subrectangular |
| " | Room 4 | 2.70-3.15 (above?) | 1.60 | | 30 | 4.77 | none left | Native soil;unlined unburned basin | Subsurf. walls=ative soil, upper=turtlebacks?; E. door. | Rectangular |
| " | Room 5 | below=3.00 (above=?) | 1.45 | | 35 | 4.28 | +, narrow | Native soil;footprint or basin? | Subsurf. walls=ative soil, upper=sm. up. slabs & mortar. | Subrectangular |
| " | Room 6 | below=2.43 (original=2.17* (above=?) | 1.22 (1.05* () | | 33 | 3.09 (2.09* | 10-30(E,S&N)/ ? tall | Plastered;unlined? irregular basin | Subsurf.=unlined,only west plastered;upper=a few slabs. | Irregular rectangular |
| " | Room 7 | below=2.51 (above=?) | 1.03 () | | 63 | 2.65 | +, dimen. not noted | Native soil;unlined basin | Subsurf.=plastered native soil residual soil pile-at E. wall; upper=turtlebacks?&adobe(S&W). | Subrectangular |
| " | Room 8 | below=1.86 (above=?) | 1.07 () | | 70 | 1.53 | +, dimen. not noted | Thin coat adobe | Subsurf.=thickly plast. soil; upper=collapsed or missing. | Subrectangular |
| 29SJ1360 | Room 2 | below=2.15 (above=?) | 1.40 () | | 91 | 2.73 | +, dimen. not noted | 2 hard pl.,2 erosional;stor. cist | Subsurf.=adobe&upright slab; upper=adobe&upright slabs. | Oval, 1 sq. end |
| " | Room 3 | 2.30 | 1.38 | .60 | 34 | 3.03 | - | No info.; irreg.cist. | Large upright slabs & adobe; door | Irregular oval |
| (Both of these storage rooms were rebuilt and continued to be used.) | | | | | | | | | | |
| 29SJ1659 | Room 12 | 1.47 | 1.17 | .80 | 46 | 1.48 | - | ? | Upright slabs (a few missing) | Irreg. oval |
| " | Room 13 | 2.29 | 0.91 | .40 | 46 | 1.92 | - | ? | Upright slabs (entire) | Long narrow oval |
| " | Room 14 | 1.83 | 0.86 | .47 | 51 | 1.28 | - | Plastered | Upright slabs (entire) | Irreg. oval |
| " | Room 15 | inner=1.31 outer=1.35 | 0.86 2.43 | | | 0.75 6.55 | +(see text) | ? | Upright slabs (entire) | Irreg. oval same |
| " | | | | | | | | ? | Upright slabs (some missing), | Irregular bin |
| Rc 51 Substruct.(these rooms not included in the calculations in text - not certain if these were remodeled forms of 700s-900s rooms) | | | | | | | | | | |
| | Room 2 | 2.44 | 2.13 | | 41 | 5.20 | | | | |
| | Room 3 (insufficient information) | | | | | | | | | |
| | Room 4 | 5.41-5.72 | | | | 2.11-2.59 | 122 | | | |
| | Room 7 | 5.49 | 2.32 | | | | | | | |

* below = dimensions below the bench or lateral shelf.
above = " " " " " "

*fpt = very slightly burned pits, distinguished in form from other "heating pits" at small sites and therefore not grouped under that designation (see text for discussion).

Table A.3. Bc 50 Substructure rooms.

Comments: The following rooms were dug beneath the Bc 50 roomblock. The dimensions presented below have been largely abstracted from the notes and maps of Nan Glenn (1937) and of Donovan Senter (1939). The entire A.D. 700s through A.D. 900s complex which underlies the site was not excavated. Figure A.94 shows a slightly revised map of this substructure which attempts to present a scale drawing of the excavated portion. Figure A.103 shows the relationship of this portion to the overlying structure.

| <u>Rm #</u> | <u>Wall Lengths (N,S,E,W)(m)</u> | <u>Est. Fl.Area(m2)</u> | <u>Maximum Wall Height(m)</u> | <u>Wall Width(cm)</u> |
|-------------|----------------------------------|-----------------------------|-----------------------------------|-------------------------|
| Sub 1 | 2.13, 2.44, 3.05, 3.05 | 6.97 | 0.41 | 17.8, 17.8, 27.9, 45.7? |
| Sub 2 | 2.13, 2.13, 2.44, 2.44 | 5.20 | 0.41 | 17.8, 27.9, 30.5 |
| Sub 3 | (insufficient information) | | | |
| Sub 4 | 2.59, 2.11, 5.72, 5.41 | 13.08 | 1.22 | - |
| Sub 5 | | | 0.46-0.61? | |
| Sub 6 | (only partially excavated) | | | |
| Sub 7 | 2.32, 2.32, 5.49, 5.49 | 12.74 | 0.75 | 30.5 |

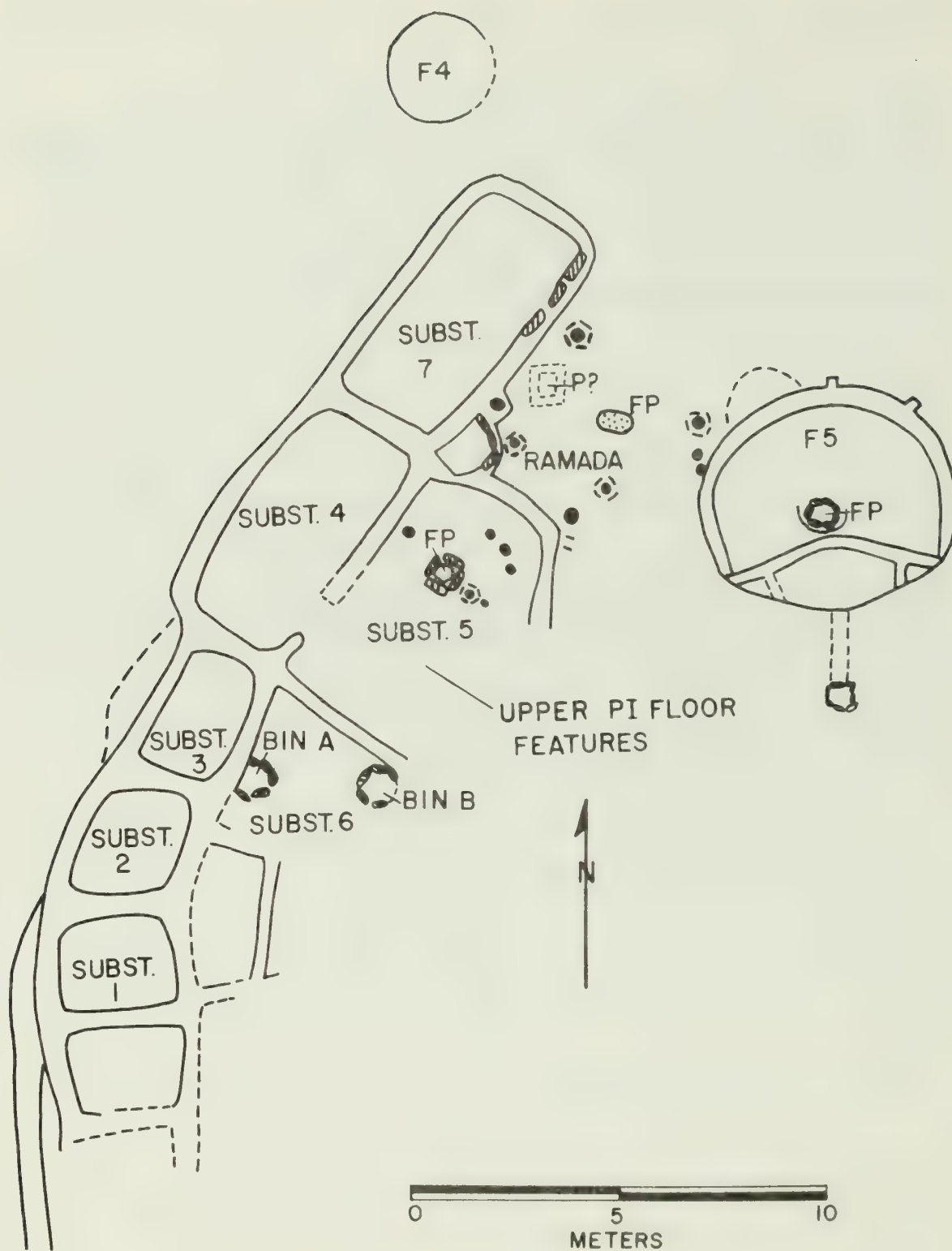


Figure A.94. Bc 50 substructure (after Truell 1980).

Table A.4. Site 29SJ 625 (Three-C site) aboveground rooms (mid/late 900s-early/middle 1000s).

| <u>Provenience</u> | <u>Length(cm)</u> | <u>Width(cm)</u> | <u>W/L</u> | <u>Floor Area (m2)</u> | <u>Features</u> |
|---|-------------------|------------------|------------|----------------------------|---------------------------------|
| <u>Rear Rooms</u> | | | | | |
| Rooms H and I (constructed during the previous period of occupation; probably continued in use during this period - see Table A.2.) | | | | | |
| Room G*a | 3.84(N-S) | 1.98 | .52 | 7.64 | clay lined heating pit*b |
| Room F*a | 3.35(N-S) | 2.13 | .64 | 6.43 | clay lined heating pit*b |
| <u>Front Rooms</u> | | | | | |
| Room A | 3.43(N-S) | 3.05 | .89 | 10.02 | |
| Room D | 2.74(E-W) | 1.37 | .50 | 3.75 | 18.83 |
| Room B*e | 2.59(E-W) | 1.83 | .71 | 5.06 | *c clay rimmed firepit |
| Room C | 3.96(N-S) | 2.74*b | .69 | 10.85 | |
| Room E*e | 3.20(N-S) | 2.44 | .76 | 8.06 | 18.91 *d corner bin, firepit |

*a = not the dimensions recorded in Vivian's published report; after room drawings in field notes (Vivian Archives #943).

*b = these pit characteristics indicated on field drawings (Vivian Archives #943-944).

*c = total ramada area associated with the northern room suite in the early to middle 900s.

*d = total ramada area associated with the southern room suite in the early to middle 900s.

*e = plaza-facing rooms with features.

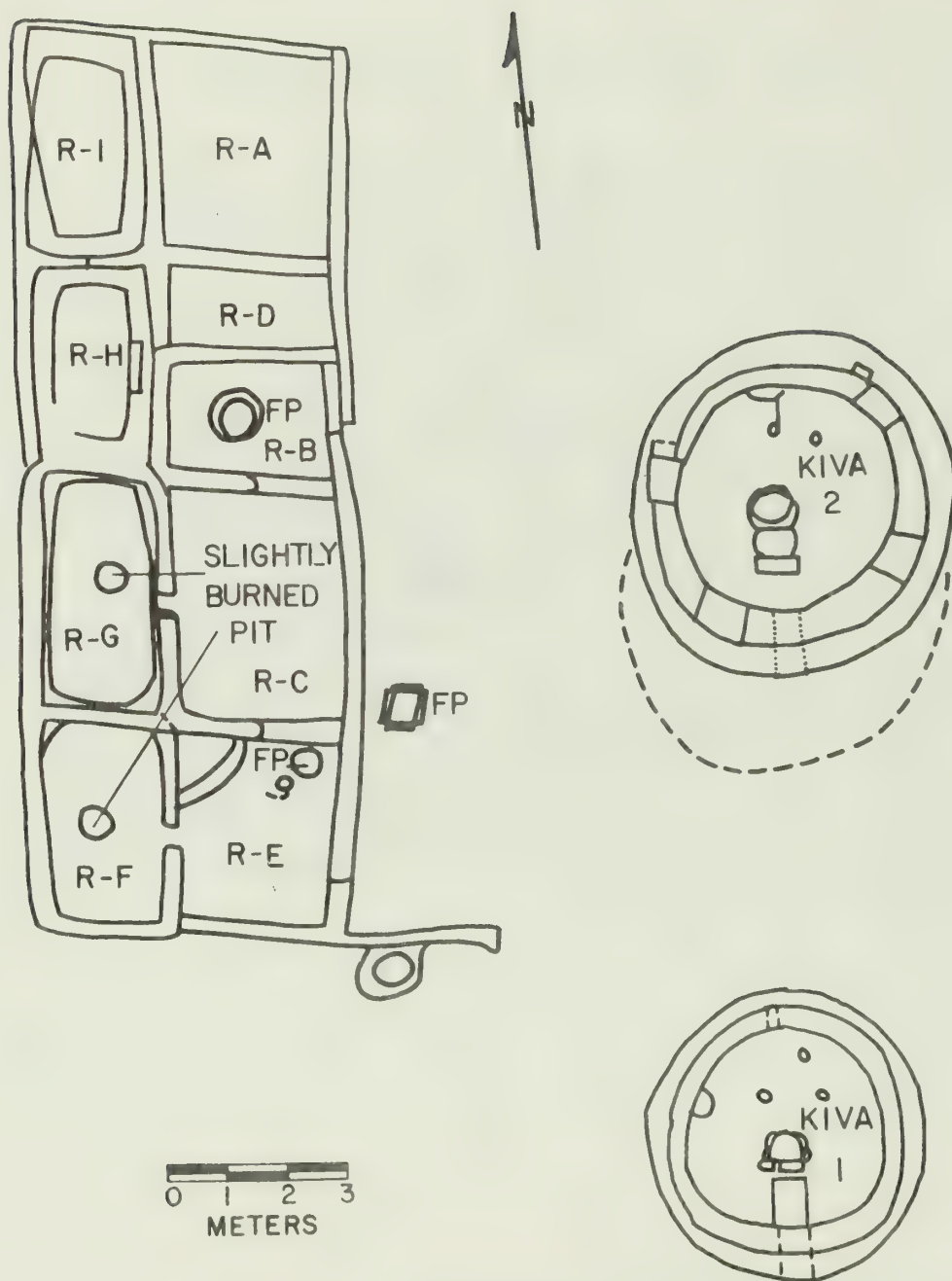


Figure A.95. Plan view of the early 1000s construction episode at the Three-C site (29SJ 625).

Table A.5. Site 29SJ 627 aboveground rooms and ramadas - second episode (mid/late 900s-middle 1000s).

| <u>Provenience</u> | <u>Length(cm)</u> | <u>Width(cm)</u> | <u>W/L</u> | <u>Floor Area(m2)</u> | <u>Features</u> |
|---|------------------------------------|------------------|------------|---------------------------|--|
| <u>West Row Storage(?) Rooms</u> | | | | | |
| Room 1 (Fl.2) | Est.2.20 | Est.1.72 | .78 | Est.3.80 | No. feats-later burial put on floor after rm. abandoned |
| Room 2 (Fls.2&3) | Est.2.30 | Est.2.30 | 1.00 | Est.5.17 | Fl.3-a) adobe-lined heating pit Fl.2-a) oval adobe-lined heating pit b) 4 postholes c) 1 unburned adobe-lined pit |
| Room 9 (Fl.3) | 2.46 | 1.90 | .77 | 4.67 | Featureless adobe surface |
| Room 4 (Fl.1?) | 2.32 | 1.85 | .80 | 4.43 | a) very large bell-shaped storage cist |
| Room 16 (Fl.2?) | (partial surface - use uncertain) | | | | Featureless-may not be a real use surface |
| Room 19 (Fl.1?) | 2.40(N-S) | 1.76 | .73 | 4.18 | a) 5 mealing bin catchments, (a 6th pit was an earlier bin beneath one) - see text b) storage cist |
| Room 22 (Fl.1?) | 3.10(N-S) | Est.2.00 | .65 | Est.3.93 | a) small cist of unident. function or a posthole |
| <u>Work/Living Area</u> - (Complete feature inventories not available from Rooms 6, 7, 10, 11, 15, and 20 - floor surfaces obliterated in remodeling) (Room or Ramada boundaries not apparent - may have been removed in remodeling) | | | | | |
| Room 3 (Fl.1A) | (not all of fl. association known) | | | | a) 2 postholes |
| Room 5 (Fl.1A) | | | | | a) large shallow adobe-lined firepit b) small bell-shaped storage cist |
| Room 8 (Fl.2) | | | | | a) 3 plugged adobe-lined firepits b) 1 low walled corner bin - tool storage? c) 2 crossed shallow grooved slots in floor plaster d) 3 shallow grooved slots in U-shape e) 4 postholes (2 questionable) |
| Room 23 (surface in fill) | | | | | a) 3 unlined heating pits |

Table A.6. Site 29SJ 627 aboveground rooms - third construction episode (1020s-1040/1050s).

| <u>Provenience</u> | <u>Length(cm)</u> | <u>Width(cm)</u> | <u>W/L</u> | <u>Floor Area(m2)</u> | <u>Features</u> |
|---------------------|---|------------------|------------|---------------------------|--|
| <u>Rear Rooms</u> | | | | | |
| Room 1 (Fl.1) | 2.45(E-W) | 2.18 | .89 | est.5.33 | (Fl. surf. removed prehist.) |
| Room 2 (Fl.1) | 2.40(N-S) | 2.23 | .93 | 5.73 | (" " " ") |
| Room 9 (Fl.2) | 2.68(N-S) | 2.00 | .75 | 5.91 | (No features - surface entire) |
| Room 4 (Fl.1) | (Floor 1 built in 2nd constr. period still in use?) | | | | 1 large bell-shaped storage cist |
| Room 16 (Fl.1) | 2.84(N-S) | 1.90 | .67 | 5.13 | (No features - surface entire) |
| Room 19* (Fl.1) | (Floor 1 built? in 2nd constr. period still in use?) | | | | 5 mealing catchments (6th = earlier bin beneath) 1 storage cist |
| Room 22 (Fl.1) | (Floor 1 built? in 2nd const. period still in use) | | | | 1 storage pit or posthole |
| <u>Middle Rooms</u> | | | | | |
| Room 11* (Fl.2?) | Est.2.30 (N-S) | Est.2.05 | .89 | Est.4.71 | Pile of burned slbs-temp.fpt.? 1 plaster lined oval pit - rim flush with floor |
| Room 6 (Fl.2?) | 2.55(E-W) | 2.10 | .82 | 5.34 | (No features? - 1 pit of unk. funct. in S. part??) |
| Room 7* (Fl.1) | 2.85(E-W) | 2.10 | .74 | 6.00 | 1 large shallow firepit or heating pits 1 or poss. 2 mealing catchments |
| Room 5 (Fl.1) | 3.06(E-W) | 2.70 | .88 | 8.09 | Pile of burned slabs on burned floor - poss. temp. firepit |
| Room 8* (Fl.1) | 2.98(N-S) | 2.86 | .96 | 8.66 | 1 slab & plaster-lined firepit 1 low walled bin-tool storage area in last use |
| Room 3* (Fl.1) | 2.78(N-S) | 2.65 | .95 | 7.50 | 3 adobe-lined heating pits |
| Room 10 (Fl.1) | 2.76(N-S) | 2.16 | .78 | 6.16 | (no floor features) |

* Rooms designated living rooms, based on feature occurrence.

Table A.6 continued.

| <u>Provenience</u> | <u>Length(cm)</u> | <u>Width(cm)</u> | <u>W/L</u> | <u>Floor Area(m2)</u> | <u>Features</u> |
|-----------------------------|-------------------------------------|------------------|------------|---------------------------|---|
| <u>Middle Rooms (cont.)</u> | | | | | |
| Room 15 (Fl.1) | 3.04(N-S) | 1.77 | .58 | 5.61 | 1 plugged feature - orig. use unclear (heating or storage?) |
| <u>Front Rooms</u> | | | | | |
| Room 20 (Fl.1) | Est.3.10 (N-S) (semicircular) | Est.2.50 | .81 | Est.5.41 | 3 mealing catchments 1 pit used last as ash pit 3 pits of unknown function - unplastered (1 had pl. base) |
| Room 17/18 (Fl.1)* | 7.61(N-S) | 1.85 | .24 | 14.29 | 5 mealing catchments 1 plastered heating/firepit 1 plaster-lined pit of unkn. function-pot rest? |
| Room 14* (Fl.1) | 2.94(N-S) | 2.43 | .83 | 7.00 | 1 plaster and slab-lined large firepit or hearth |
| Room 12* | 2.96(N-S) | 2.23 | .75 | 7.01 | 1 plaster & slab corner firepit |

* Rooms designated living rooms, based on feature occurrence.

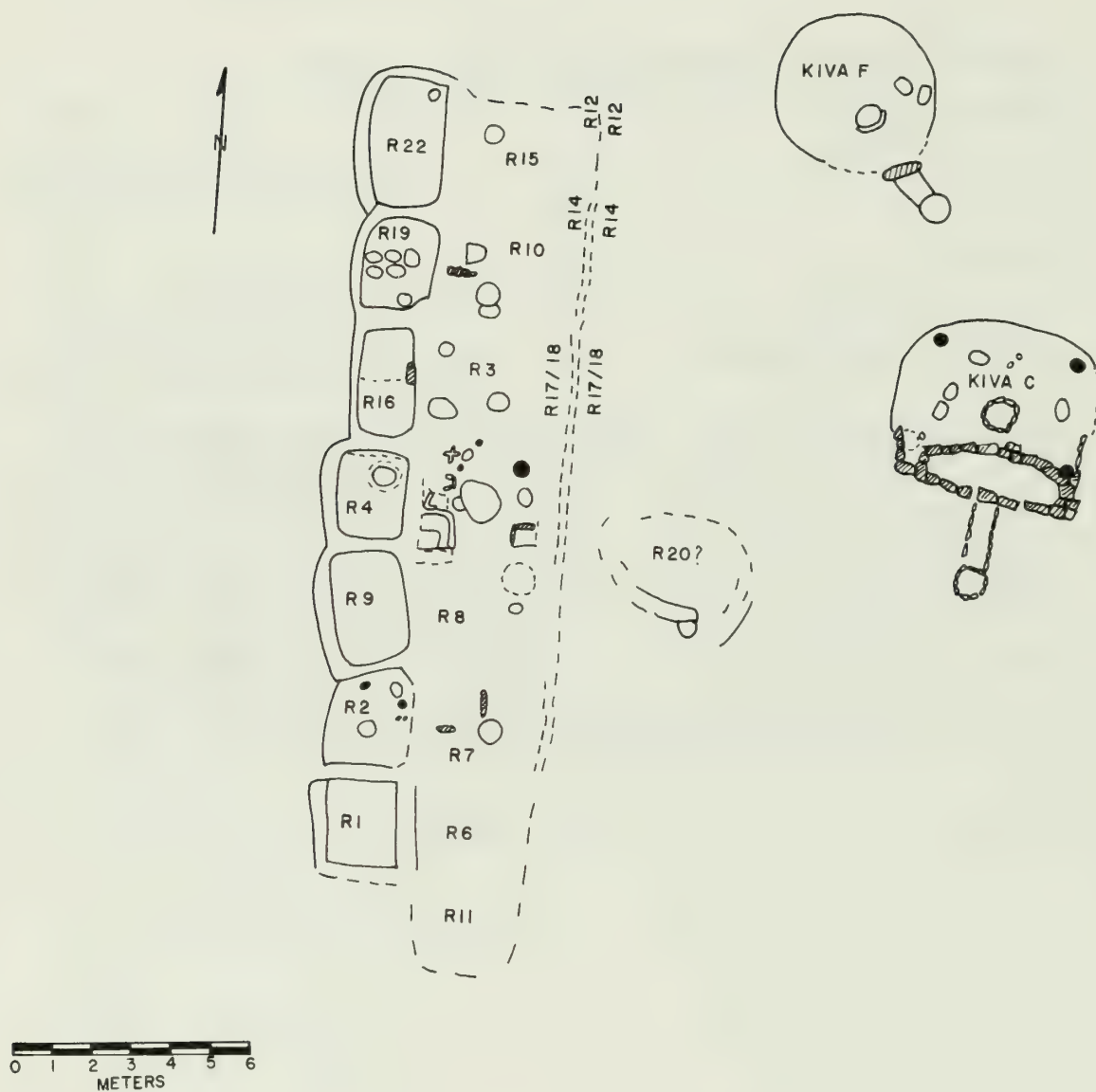


Figure A.96. Plan view of the second construction episode at site 29SJ 627 (late A.D. 900s-1000s) (after Truell 1981).

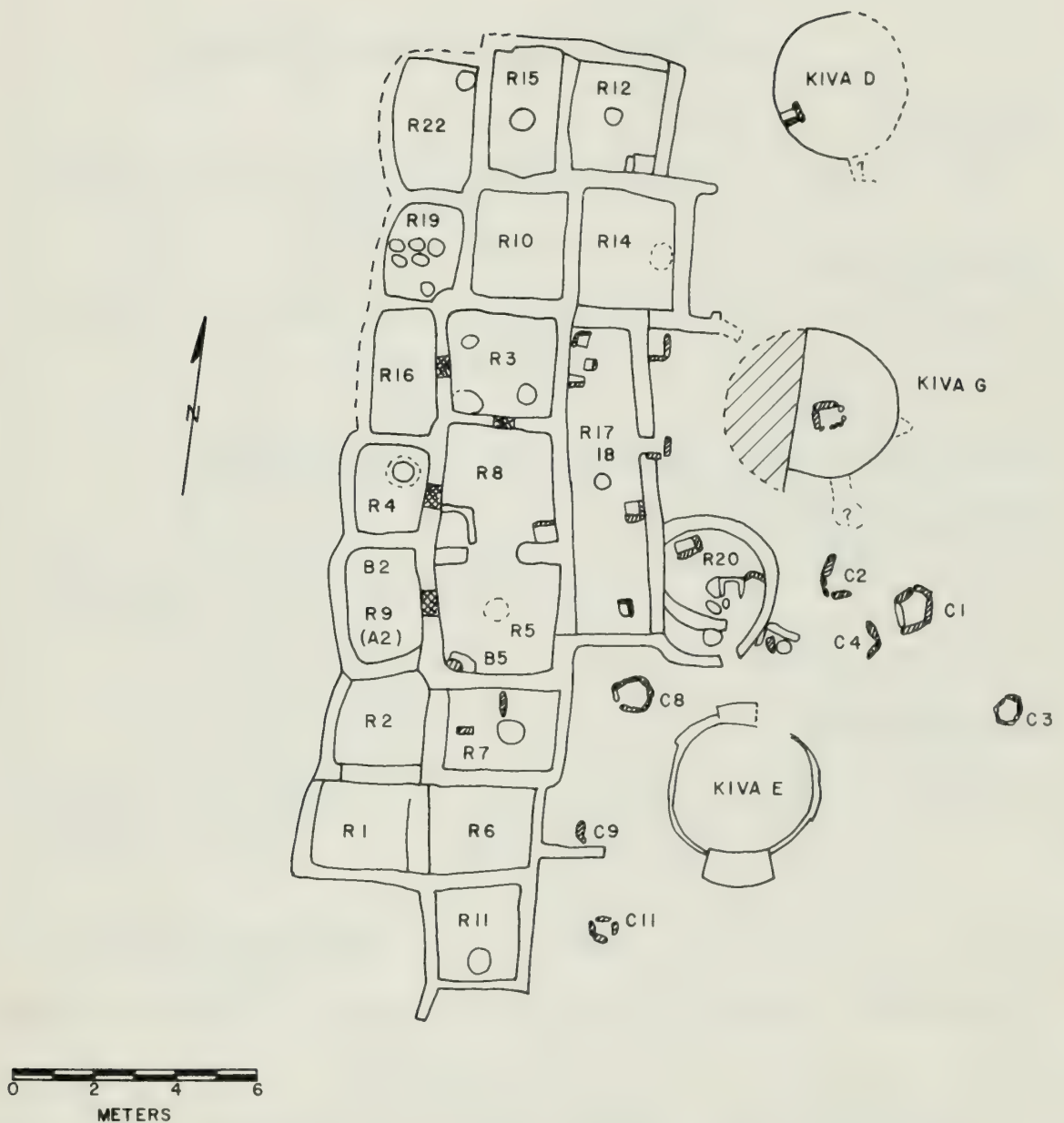


Figure A.97. Plan view of the third major construction episode at site 29SJ 627 (A.D. 1020s-1040/1050) (after Truell 1981).

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Table A.7. Site 29SJ629 aboveground rooms and ramadas associated with the late 900s-early 1000s.

(Continued use from the 925 - 975 Period)

Storage Rooms

Rooms 5, 6, and 7 (described on Table A.2) continued in use during this period. All were of the same size as described above.

Living/Work Areas

Plaza Area (also continued in use in the late 900s- early 1000s).

(ca. 975-1000)

| <u>Provenience</u> | <u>Length(cm)</u> | <u>Width(cm)</u> | <u>W/L</u> | <u>Floor Area(m2)</u> | <u>Features</u> |
|--------------------------|-------------------|------------------|------------|---------------------------|--|
| <u>Storage Rooms</u> | | | | | |
| Room 2 | 2.10(N-S) | 2.00 | .95 | 4.16 | Small crude firepit; step into Room 3 |
| Room 8 | 3.50(N-S) | 2.15 | .61 | 6.72 | |
| <u>Living/Work Areas</u> | | | | | |
| Room 9 | 3.37(N-S) | 2.85 | .78 | 7.58 | 2 firepits, 3 heating pits, 2 bin catchments, 1 corner bin (split level floor surface?) |

Room

floor bins

Ramada area constructed in previous period seems to continue in use.

(ca. 1000-1025)

No rooms added; large bell-shaped pits in ramada area no longer in use (see Figure A.98b).

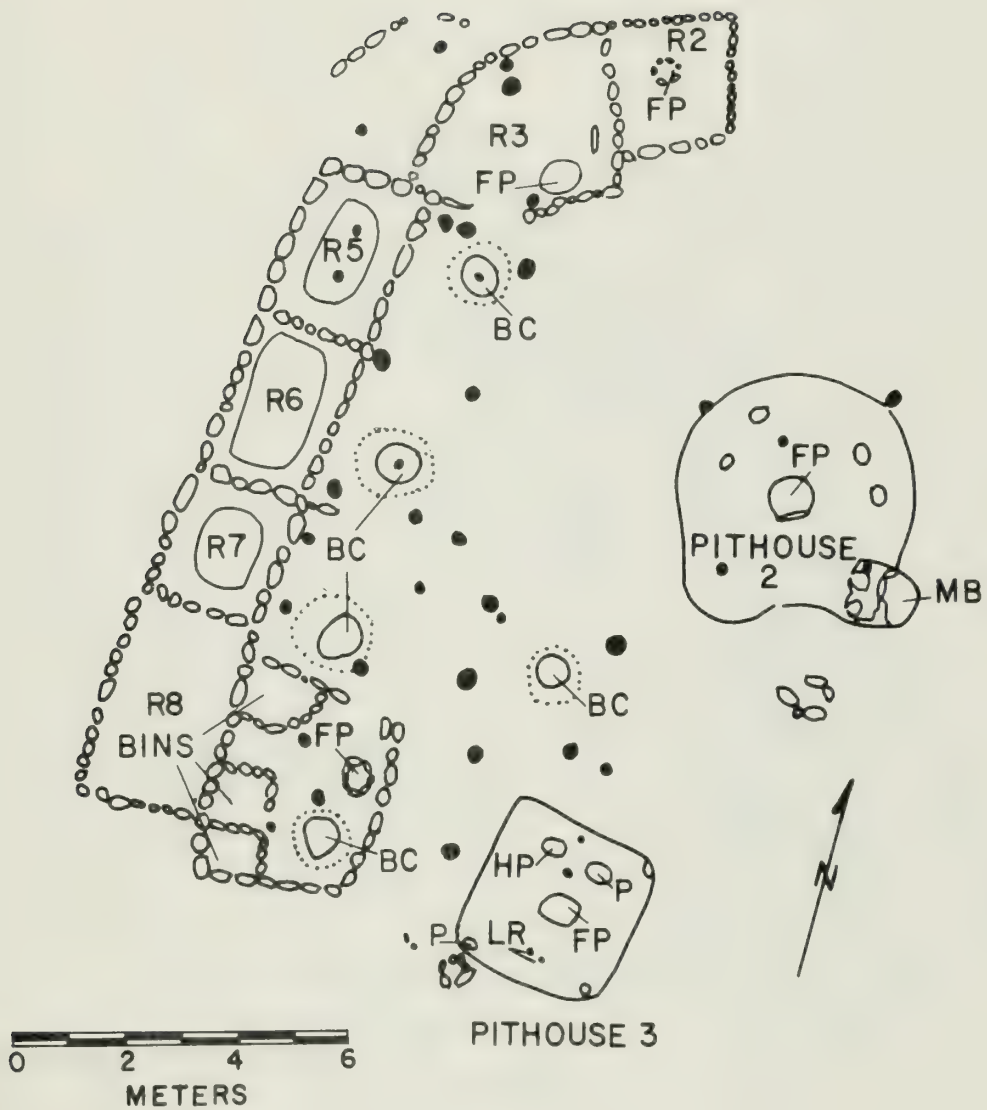


Figure A.98a. Plan view of Phase III construction at site 29SJ 629 (A.D. 975-1000) (after Windes 1978b).

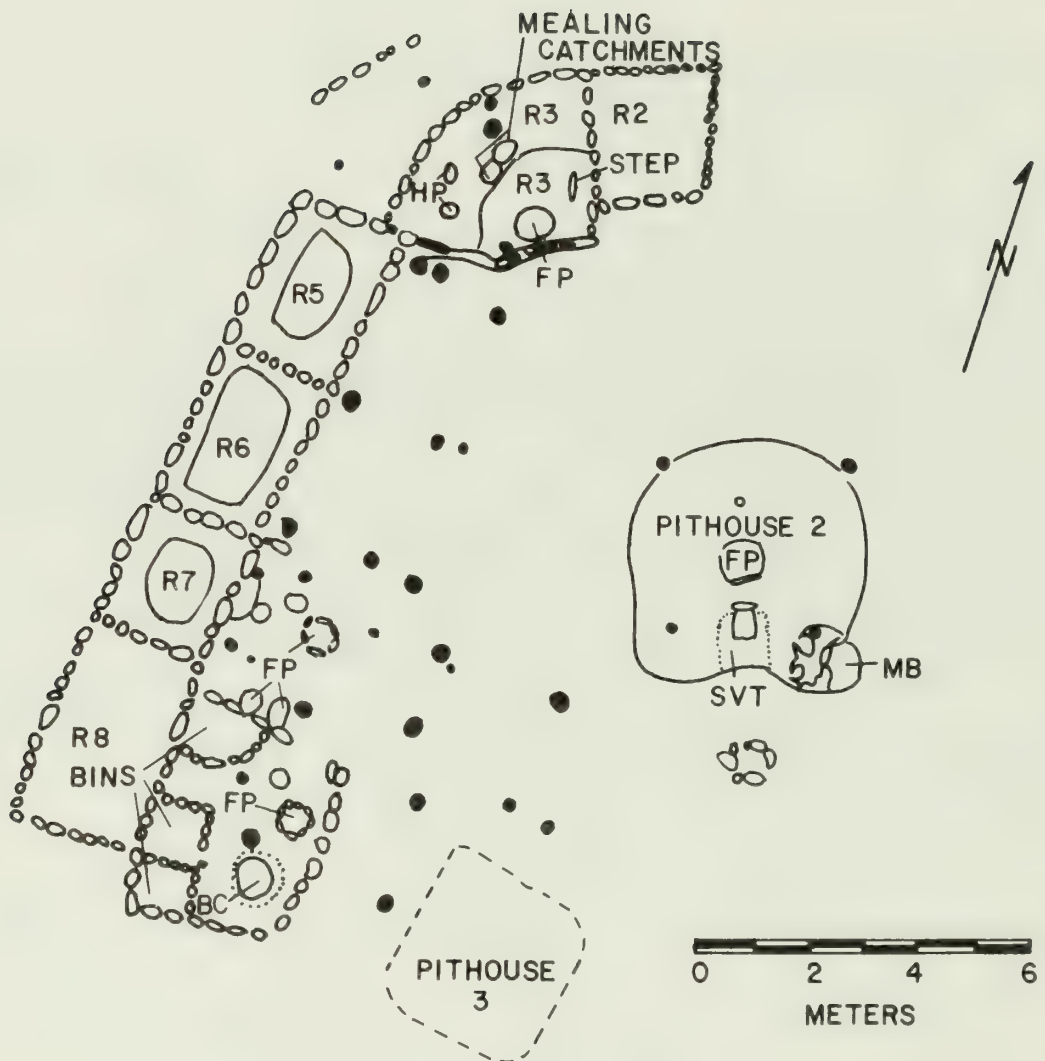


Figure A.98b. Plan view of Phase IV construction at site 29SJ 629 (A.D. 1000-1025) (after Windes 1978b).

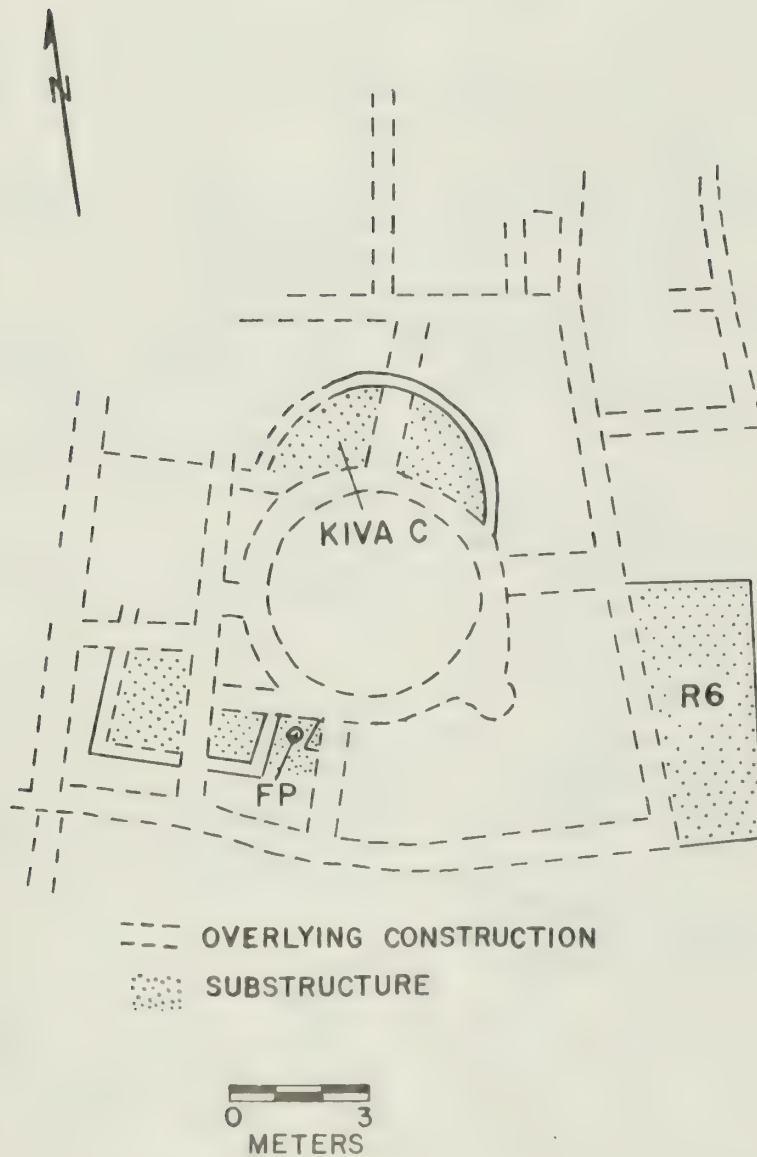


Figure A.99. Plan view of the excavated portion of the first construction episode of Leyit Kin (29SJ 750), central roomblock (middle to late A.D. 900s) (after Dutton 1938).

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Table A.8. Site 29SJ 1360 aboveground rooms (mid 900s-early 1000s).

| <u>Provenience</u> | <u>Length(m)</u> | <u>Width(m)</u> | <u>W/L</u> | <u>Fl.Area(m2)</u> | <u>Features</u> |
|--|--|-----------------|------------|--------------------|---|
| <u>House 1</u> | | | | | |
| <u>(Storage Rooms)</u> | | | | | |
| Room 1 | 1.90(N-S) | 1.25 | .66 | 2.31 | a) sealed bell shaped pit - extended under E. wall |
| Rooms 2, 3, 4 (may have continued in use during this period?) | | | | | |
| Room 9 | 3.05(N-S) | 1.70 | .56 | 5.17 | No floor found |
| <u>(Living/Work Rooms)</u> | | | | | |
| Room 6 | 2.50(E-W) | 2.38 | .95 | 6.05 | Fl.3? (upper) - no feats. Fl.2 - well compacted surf. a) 2 straight sided pits; flat bottoms; funct. unk. Fl.1 (lower)-good surface a) hearth-circular, slab-lined b) 5 postholes-N-S line |
| (3 floors, 1 questionable) | | | | | |
| Room 7 | 2.50(E-W) | 2.48 | .99 | 6.15 | Floors 2 and 3 (upper) high in fill - assoc. w/ Rm. 8, fl.1) Fl.1 - thick adobe surface a) Firepit 1-slabs & adobe b) Storage pit c) Other Pit # 1 - unlined oxidized edge (heating pit?) |
| Room 11 | 3.00(N-S) | 1.80 | .60 | 5.33 | Fl.1 - a) Firepit - large oval slab-lined b) Heating Pit - shallow, unlined?, burned rim c) 4 postholes |
| <u>(Room Function Unknown)</u> | | | | | |
| Room 8 | Est.3.65 | 2.83 | .78 | Est.10.33 | (Heating pit upper fill assoc. with Fls. 2 & 3, Rm.??), Fl.1 mostly gone-no features left |
| (Fl. very eroded; 75% missing) | | | | | |
| Room 10 | 3.10(E-W) | 1.73 | .56 | 4.51 | Fl.1 - a) 2 sm. unlined pits b) slot in E. wall-funct.? |
| Room 5 | (part of plaza - see below) | | | | |
| <u>(Partially Walled or Unwalled Portions of the Plaza Containing Features)</u> | | | | | |
| "Area 1" (not clearly a distinct area from rest of the plaza) | a) Firepit-sealed, slab-lined b) Other Pit 1-lined, funct.unk c) 2 Postholes | | | | |
| "Area 3" (N. & S. of L-shaped ramada wall) | South of & enclosed by wall- a) Large slablined stor. bin b) 3 oval mealimg catchments? c) 4th square slablined pit-4th catchment or heating pit? | | | | |
| "Area 5" (originally Room 5) | a) Heating pit-slabs 2 sides | | | | |
| <u>House 2 (All Room Functions Unknown)</u> | | | | | |
| Room 1 | (only a portion remains) | | | | No formal floor found; large burned spot assoc. with occup. or demise or post-occup. |
| Room 2 | 1.70(N-S) | 1.08 | .64 | 1.27 | No data on fl. or feats. |
| Room 3 | 3.65(NE-SW) | 1.60 | .44 | 5.84 | No. fl. found; 2 postholes-part of adjacent ramada? |
| Room 4 | (only a small portion remains) | | | | No floor found - 1 ph in NW corner-part of ramada? |
| ----- | | | | | |
| <u>Ramada between houses 1 and 2</u> | | | | | |
| Est.183.5?? a) 33 postholes - not in 2 neat parallel lines b) 2 large slab-lined fpts. c) 1 above-lined firepit d) 1 burned pit - heating or firepit? e) 3 adobe mixing pits | | | | | |

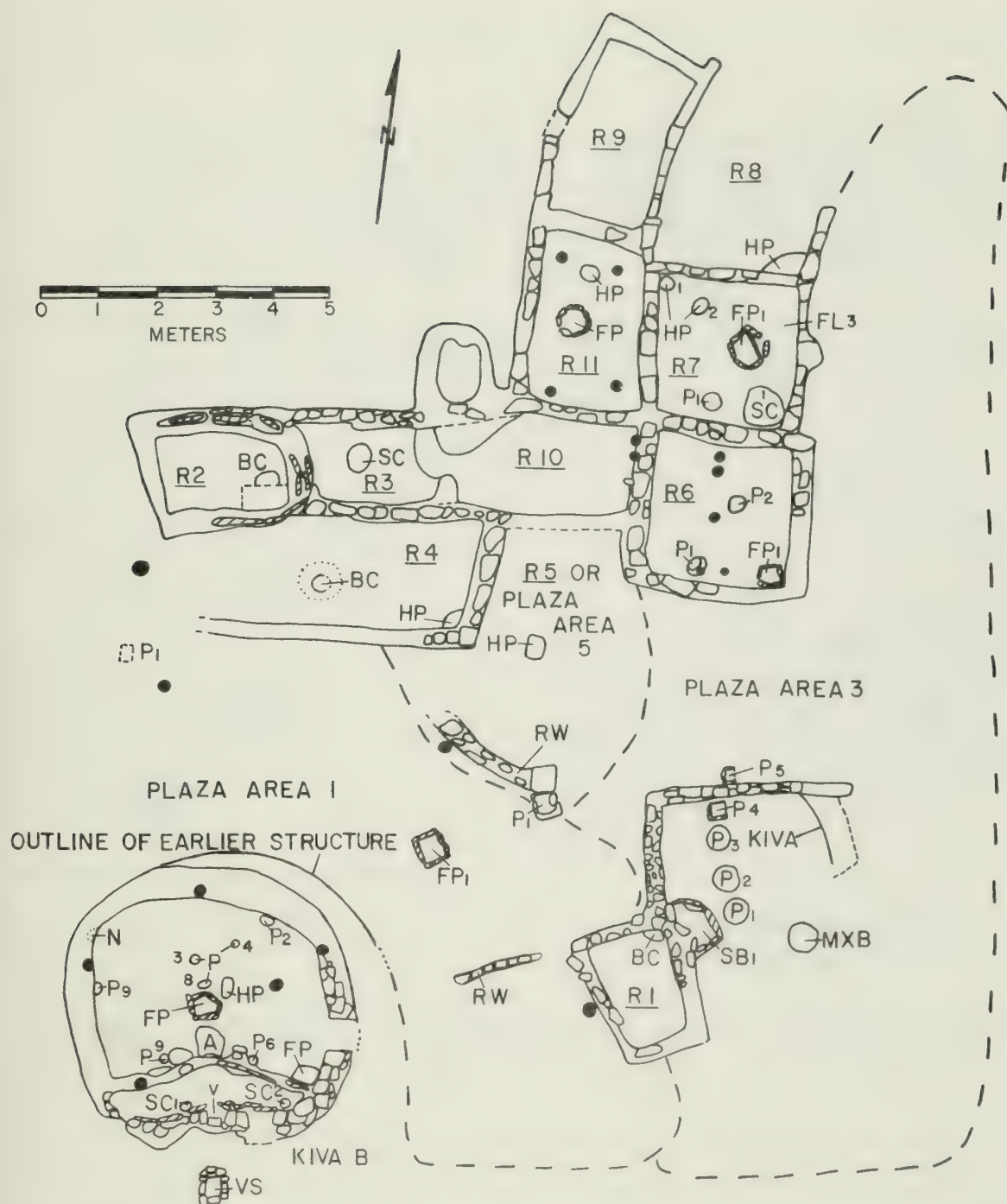


Figure A.100. Plan view of House 1 at site 29SJ 1360 (after McKenna 1983).

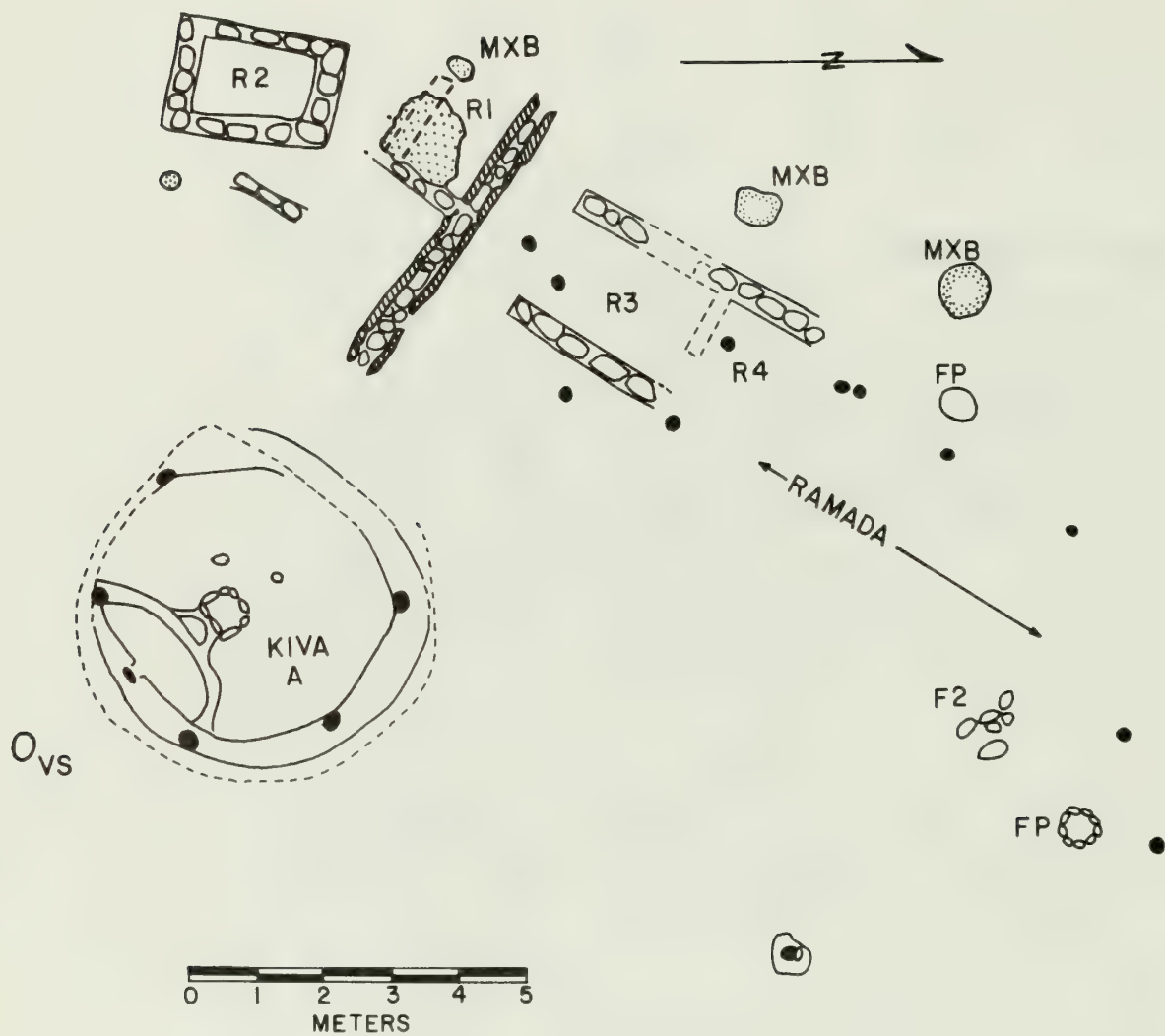


Figure A.101. Plan view of House 2 at site 29SJ 1360 (after McKenna 1983).

Table A.9. Sites Bc 24, Bc 26 (29SJ 750), "Leyit Kin," (Way-Down-Deep House).

Comments: The rooms listed here are associated with the upper walls (as shown in Figure A.102). The lower floors not conforming to these wall configurations are not considered. Some of the rooms listed may have been abandoned prior to others in this group; it must not be assumed that these are strictly contemporaneous. Three groups of rooms surrounding the three pit structures at the site are considered as units.

| <u>Rm #</u> | <u>Wall Length (m)</u> <u>(N,S,E,W)</u> | <u>W/L</u> <u>Ratio</u> | <u>Max.</u> <u>Floor</u> <u>Area(m2)</u> | <u>Max.</u> <u>Wall</u> <u>Ht.(m)</u> | <u>Thick.</u> <u>Range</u> <u>(cm)</u> | <u>Fl. Features (not</u> <u>a complete list)</u> <u>& Other Comments</u> |
|---|---|----------------------------|--|---|--|--|
| <u>Group #1</u> (northern most cluster associated with Kiva B) | | | | | | |
| 1 | 2.51, 2.44, 1.78, 1.68 | 0.70 | 4.26 | | | (substr. features only) |
| 2 | 1.75, 1.93, 2.11, 1.91 | 0.92 | 3.70 | | | Fl.1=bin(mealing?) Fl.2=ph,ashpit/fpt |
| 3 | 0.94, 0.76, 1.78, 1.78 | 0.48 | 1.51 | | | |
| 4 | 1.65, 1.80, 3.12, 3.15 | 0.55 | 5.42 | | | Fl.1 = fl. burns; Fl.2 = 2 mealing bins; buried jar |
| 5 | 2.29, 2.31, 2.01, 1.40 | 0.74 | 3.92 | | | Fl.1=ashpit(43x46x 3l deep); firepit (41x46x25 deep) |
| 10 | 2.92, 2.97, 2.06, 2.06 | 0.70 | 6.08 | | | - |
| 11 | 2.31, 3.05, 2.19, 2.68 | 0.91 | 6.53 | | | - |
| 16 & 16a (combined) | 3.45, 3.30, 3.63, 3.05 | 0.99 | 11.29 | | | - |
| <u>Group #2</u> (middle cluster associated with Kiva A) | | | | | | |
| 7 | 2.29, 2.26, 2.44, 2.08 | 0.99 | 5.14 | | | (substr. feats) |
| 8 | 2.41, 2.29, 3.10, 3.15 | 0.75 | 7.34 | | | (substr. feats.) |
| 9 | 2.46, 2.41, 3.02, 3.22 | 0.39 | 7.61 | | | - |
| Unnamed incomplete room on NW corner of this group not included, no dimensions available. | | | | | | |
| <u>Group #3</u> (southern cluster around Kiva D) | | | | | | |
| 12 | (dimensions not recorded - very little excavation done) | | | | | |
| 13 | 2.44, 2.26, 3.20, 3.22 | 0.73 | 7.54 | | | |
| 14 | about 3.35 x 2.36 | 0.70 | 7.91 | | | (excavation not completed) |

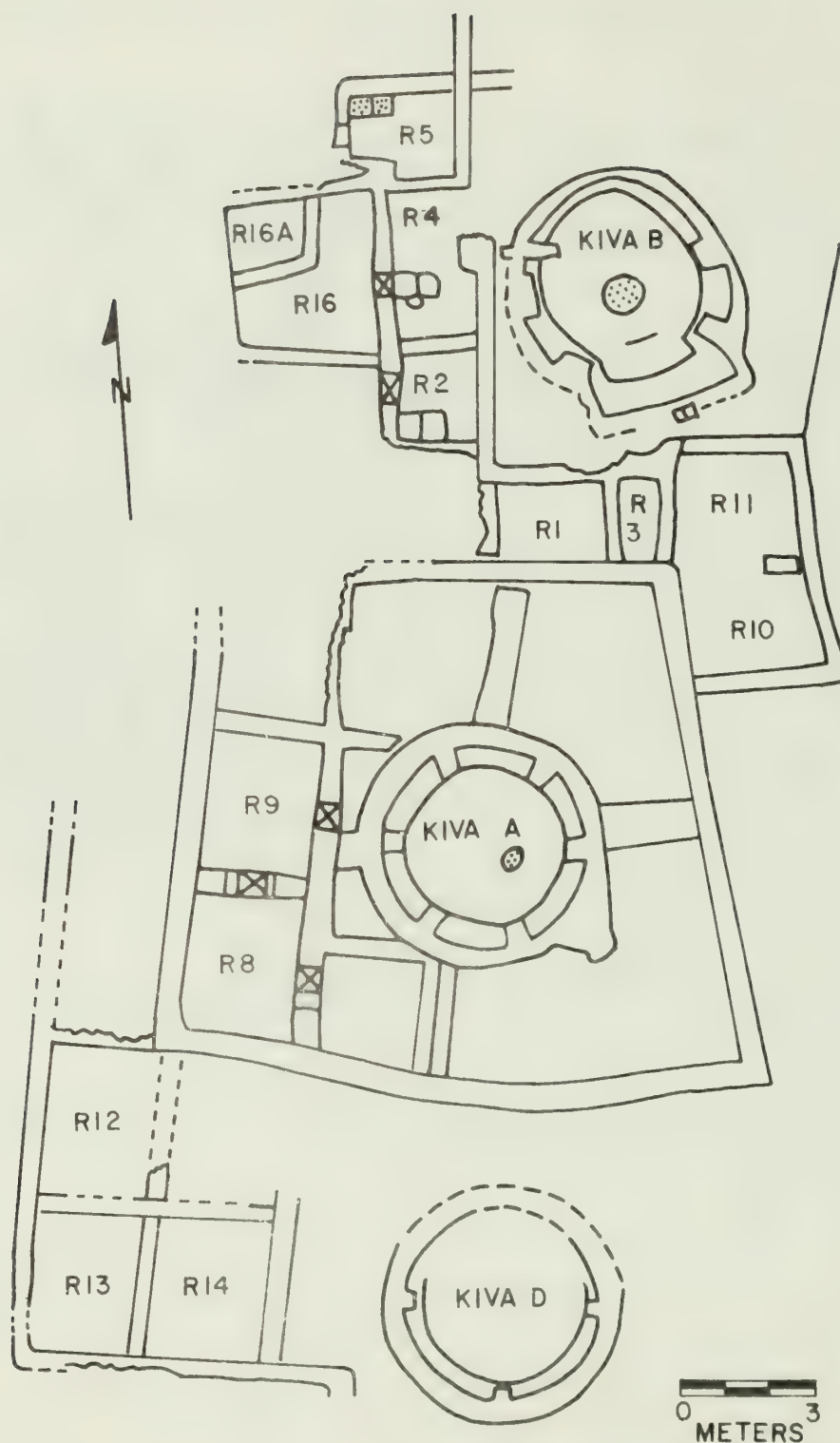


Figure A.102. Leyit Kin (29SJ 750) late 1000s-middle 1100s construction (after Dutton 1938).

Table A.10. Site Bc 50 (29SJ 394), "Tseh So" ("windows" or "openings"), "Rock Crystal House."

Comments: The following lists rooms of the last major construction at the Bc 50, perhaps more accurately described as associated with the upper rooms walls. (The substructure thought to have been built in "Pueblo I times" is considered separately in Table A.3.) These do not appear to have been built during a single remodeling period, although Hibben in Brand et. al. (1937:71) mentions that rooms 8, 18, and 19 were added on to the roomblock after the rest had been built. Hibben also notes that there were second story rooms over rooms 1, 2, 3, 4, 22, and possibly 14, and there seems very good evidence for this. Unfortunately the site report does not discuss room associations.

| Rm # | (from student notes) | | (Planimeter) | | Max. | Thickness | Floor Features | |
|-----------------|--|---------------------|--------------|-----------------------------|-------------|------------|---------------------------------|--|
| | Wall | Length (N,S,E,W)(m) | W/L Ratio | Floor Area(m ²) | Wall Ht.(m) | Range (cm) | (incomplete?) & Other Comments | |
| 1 | 2.41, 2.54, 2.97, 2.69 | | 0.87 | 8.27 | | | painting wood | |
| 2 | 1.98, 2.44, 2.29, 2.08 | | 0.99 | 5.24 | 2.74 | | | |
| 3 | 1.87, 1.85, 1.97, 1.97 | | 0.94 | 4.33 | 2.13 | | | |
| 4 | 2.18, 1.78, 2.74, 2.36 | | 0.78 | 5.65 | 2.31 | | 1 or 2 cists, storage pits | |
| 5 | 2.53, 2.47, 2.18, 1.98 | | 0.82 | 6.51 | 2.50 | | bin (mealings?) | |
| 6 | (no dimensions listed) | | | 6.97 | - | | (no notes) | |
| 7 | 2.26, 2.26, 2.51, 2.51 | | 0.90 | 5.88 | 1.60 | 28-48 | | |
| 9 | 1.88, 2.03, 2.46, 2.24 | | 0.83 | 5.58 | 1.57 | | firepit | |
| 10 | (no dimensions given) | | | 5.58 | | | (no notes) | |
| 11 | (no dimensions given) (NE) (NW) (S) - 5 sided | | | 6.26 | | | (no notes) | |
| 14 | 1.62, 0.96, 2.26, 1.86, 1.55 | | | 6.04 | 1.55 | 25 | fpt.(43x33x16.5) 2 pot rests | |
| 16 | 2.26, 2.34, 3.25, 3.12 | | 0.72 | 8.98 | 1.40 | 37-38 | fpt. | |
| 17 | 2.74(E-W)x2.13(N-S) | | 0.77 | 5.67 | 1.22 | | | |
| 20 | est 1.96 x 2.84 | | 0.69 | 6.08 | 2.01 | 20-25 | subfl.bin, 2 jars | |
| 21 | (no dimensions given) | | | 5.31 | | | (no notes) | |
| 22 | 1.75, 1.73, 1.96, 2.06 | | 0.87 | 3.50 | 1.98 | 18 | | |
| 23 | (no dimensions given) | | | ? | | | | |
| Later Addition: | | | | | | | | |
| 8 | 2.16, 1.78, 2.52, 2.55 | | 0.78 | 6.47 | 1.42 | 28-43 | firepit | |
| 18 | (no dimensions given) (E-W) (N-S) | | | 5.00 | | | | |
| 19 | est 1.42 x 2.31 | | 0.61 | 3.97 | 0.94 | | 3 mealings bins | |

Table A.11. Site Bc 50 aboveground room roofing information.

| Room # | Material and Labor (listed lowermost first) | Size (cm) | Species | Length (m) | Dates | Wall Sockets | Spacing Beams or Sockets | References+ |
|--------|--|----------------------------|---|---------------|--------------------------|---|-----------------------------|--------------------------------------|
| 1 | adobe impressions with reeds, grass | | | | | | | Brand 1937:71 |
| 2 | 1 viga removed from wall | | ? | | | 20 x 31 cm viga seat | | Archives #1685 |
| 4 | a)1 viga b)10 latillas c)split slabs d)reeds-in groups of 7, bound with twisted vuca strands every 15 cm e)adobe, brush, rubble, leaves | 20 62 - - 5.08 | ? pinvon & juniper juniper Equisetum (horsetail) | 2.40? | | E & W walls Ran 1/2 way through N & S walls | | Archives #1687 Brand 1937:71,72 |
| 9 | roofing impressions | | | | | | | Brand 1937:72 |
| 14 | | | | | | | ? | Brand 1937:72 |
| 15* | 1 viga | | ponderosa pine | | 819-922 +10-20 to end | | | Bannister 1965:132 Brand 1937:115 |
| 16 | roofing impressions, beam frags. | | juniper | | | | | Archives #1699 |
| 17 | twigs, matting, poles | | | | | | | Archives #1699 |
| 20 | 1 piece of wood, adobe | 6.35 | | frag. | | | | Archives #1702 |
| 22 | 1 viga | | | | | | | Archives #1704 |
| X | 5 latillas | | | | | | | |

* Bannister says "Room 15" but there is not Room 15 at Bc 50. Designation must have changed since the Chaco Center Archives has some pottery counts from a Room 15. Hawley in Brand et al.(1937:115) does not mention a provenience.

+ References have been abridged here for lack of space.

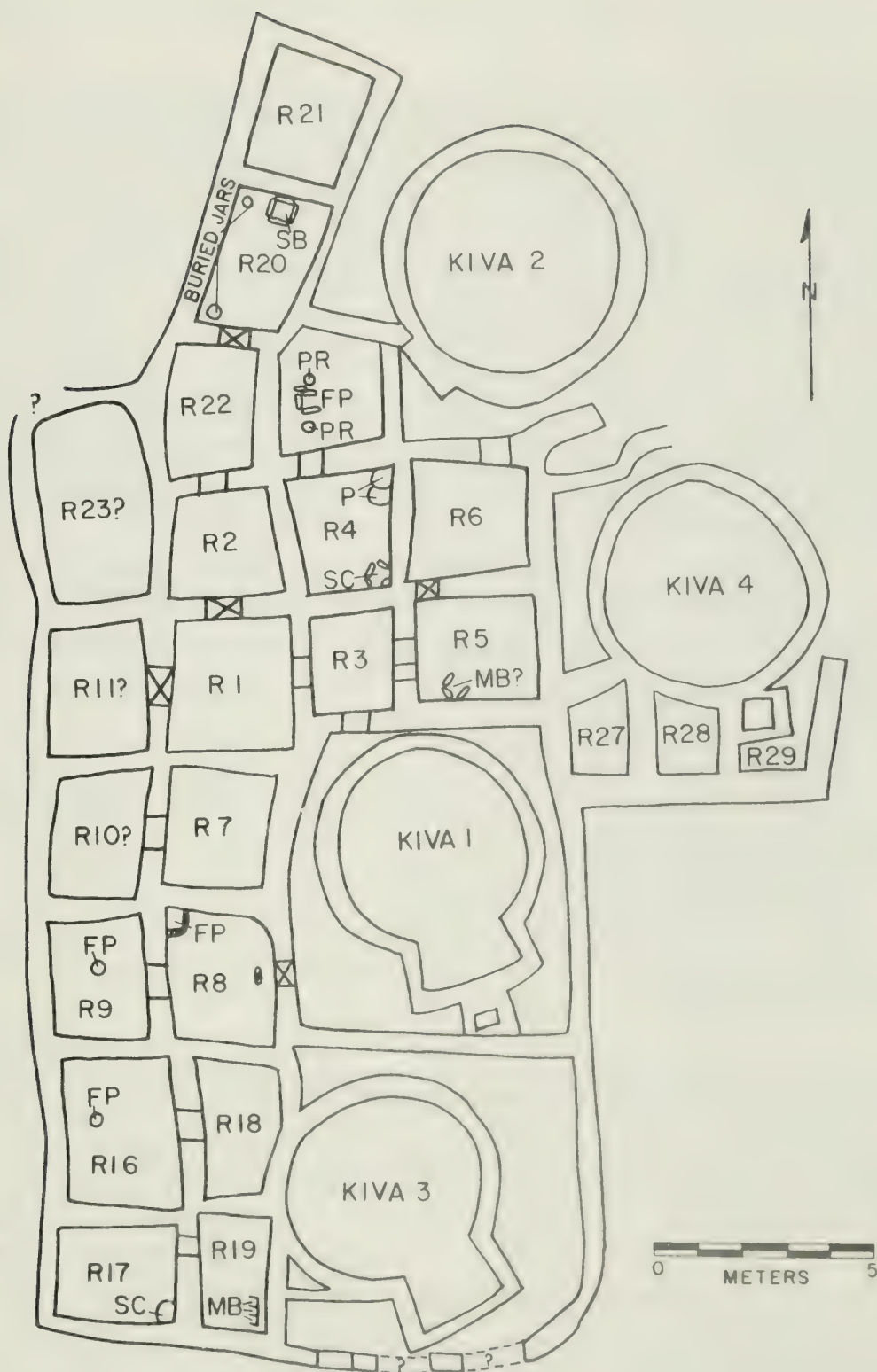


Figure A.103. Bc 50, late 1000s-middle 1100s.

Table A.12. Site Bc 51 (29SJ 395), "Didn't Say So."

Comments: Very little is known about the Bc 51 construction sequence, even if one just considers rooms associated with upper walls as shown in Figure A.104. A large part of the site was dug by R. Gordon Vivian and his crew during stabilization, for which there is essentially no record. Additionally, specific room association information was not supplied by Kluckhohn (Kluckhohn and Reiter 1939:30-34) in his write-up. No attempt to piece together the substructure, as was done with Bc 50, was attempted here since too little information was available. Five or six units of rooms in the superstructure were grouped as they had interconnecting doorways. Second stories are suggested in the superstructure of rooms 39 and 40 (both of these have substructure walls as well). However, the rooms in the row to the west of these two may have either had two stories or have been built on top of earlier, filled rooms (the upper rooms are offset slightly from the lower ones). The offset of the lower floor would be somewhat unusual (especially in a site where walls are so thin) had the upper story been used simultaneously. However, it is just as atypical that the lower room masonry should be left intact up to the beam sockets in the walls as was done in the case of rooms 24?, 20, 16A, 16B, 17, and doubtless a few others for which we have not information.

| Rm # | Wall Lengths (N,S,E,W) (m) | W/L Ratio | Aver.* Fl.Area(m2) | Wall Ht. | Wall Width | Features (not complete?)& Etc. |
|---|---------------------------------|--------------|-----------------------|-------------|---------------|-----------------------------------|
| <u>Group #1</u> (interconnecting doors [some sealed] - N. end of site)-Assoc.=Kiva 6? | | | | | | |
| | NE SW NW SE | | | | | |
| 1 | 2.21, 2.39, 3.96, 4.29 | 0.56 | 9.5 | 1.30 | 30-41 | |
| | NE SW NW SE | | | | | |
| 7 | 2.67, 2.67, 2.54, 2.49 | 0.94 | 6.72 | 1.51 | 25-31 | firepit |
| | NE SW NW SE | | | | | |
| 8 | 4.27, 4.11, 2.57, 2.57 | 0.61 | 10.77 | 1.47 | | 2 firepits |
| | NE SW NW SE | | | | | |
| 9 | 2.55, 2.80, 2.30, 2.45 | 0.89 | 6.37 | 1.60 | 30 | firepit |
| | NE SW NW SE | | | | | |
| 10 | 2.38, 2.44, 1.01, 1.22 | 0.46 | 2.70 | | | firepit |
| | NE SW NW SE | | | | | |
| 18 | 2.13?, 2.18, 5.36, 5.03 | 0.42 | 11.33 | 1.07 | | |
| | (E-W) (N-S) | | | | | |
| 33 | est. 1.98 x 2.13 | 0.93 | 4.22 | | | |
| | | | | | | |
| 34 | est. 1.83 x 3.05 | 0.60 | 5.58 | | | goodies cache |
| (Rooms 35,36, 37, 11, and 32 may have been associated with this group, however no interconnecting doorways have been verified.) | | | | | | |
| <u>Group #2</u> (immediately SW of Group #1) Groups 2 and 3 include some of the oldest rooms of the superstructure and may have been connected at one time. | | | | | | |
| | N-NE S-SW E-SE W-NW | | | | | |
| 2 | 2.35, 2.06, 1.65, 2.13? | 0.75 | 4.16 | 1.32 | 18-46 | pit (unk. funct.) |
| | (above the "bench" - see notes) | | | | | (Rooms 2 & 3 originally 1 room) |
| | | | | | | |
| 3 | 2.31, 2.31, 1.75, 1.63 | 0.73 | 3.90 | 0.91 | 20-46 | |

(Averaged*=planimeter not used since the accuracy of the base map scale was in question and a suitable one was not immediately apparent.)

Table A.12 continued.

| Rm # | Wall Lengths (N,S,E,W) (m) | W/L Ratio | Aver.* Fl. Area(m2) | Wall Ht.(m) | Width (cm) | Features (not complete?)& Etc. |
|---|-------------------------------|--------------|------------------------|-------------|---------------|--|
| 4 | 1.98, 1.89, 1.52, 1.52 | 0.39 | 2.94 | 0.97 | 31-46 | |
| 5 | 1.91, 2.24, 1.63, 2.03 | 0.88 | 3.81 | 1.35 | 20-46 | |
| 17 | 1.44, 1.60, 2.13, 2.16 | 0.71 | 3.26 | 0.81? | 18-40 | plugged corner doorway |
| 19 | 1.88, 1.78, 3.73, 3.58 | 0.50 | 6.70 | 0.61? | 15 | |
| 38 | 2.26(E-W)x2.74(N-S)est. | 0.82 | 6.19(est.) | | | |
| 39 | 2.44(E-W)x3.51(N-S)est. | 0.70 | 8.56(est.) | | 31-46 | |
| <u>Group # 3</u> (possibly part of Group # 2 but no connecting doors?) | | | | | | |
| 15 | 1.60, 1.85, 1.98, 1.98 | 0.87 | 3.42 | 0.91 | 18-52 | Fl.1-fpt;Fl.2-fpt, 1 other pit |
| 16A | 1.58, 1.64, 1.29, 1.58 | 0.89 | 2.31 | | 15-31 | |
| 16B | 2.24?,2.24, 2.49, 2.20 | 0.48 | 5.25??Too big? | | 15-46 | Fl.1-fpt;Fl.2-fpt |
| | (E-W) (N-S) | | | | | |
| 40 | est. 3.05 x 2.44 | 0.80 | 7.44 | | 27-55 | Fl.1-fpt,granary; Fl.2-firepit |
| <u>Group # 4</u> (SE of Kiva 3) | | | | | | |
| 20 | 2.31(E-W)x2.41(N-S) | 0.96 | 5.57(est.) | | 15-46 | Fl.1-fpt,2 bins; Fl2-featureless |
| 21 | 3.46, 3.35, 2.34, 2.23 | 0.67 | 7.78(est.) | | | 2 fpts, 1 cist |
| <u>Group # 5</u> (E of Kiva 1) | | | | | | |
| 45 | 2.29(E-W)x1.86(N-S) | 0.81 | 4.26(est.) | | 21-91? | roasting pit,cist, buried jars,2 pits |
| 46 | est. 1.95 x 1.98 | 0.98 | 3.86(est.) | | | |
| <u>Group # 6</u> (N of Kiva 7) Room 47 labeled # 49 and # 48 labeled # 53 on Vivian map | | | | | | |
| 47 | 3.15(E-W)x3.15(N-S)est. | 1.00 | 9.92 | | | Fl?- 5 mealing bins, granary |
| 48 | est. 2.43 x 3.35 | 0.73 | 8.14 | | | Subfl.vent,ashpit, 3 pits,mason. box? |

50(T28) (see Table A.12, last page)

Wall Lengths = Unless specified above the number, wall lengths are listed in order north wall length, south wall, east, and west. In some cases, walls do not clearly conform to this orientation and are listed as NE, SW, NW and SE. In rooms for which we have no notes and measurements were taken from the maps, the first measurement given is the east-west axis in the middle of the room and the second, the north-south one.

Estimated sizes of rooms not in obvious groups are listed on the next page.

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Table A.12 continued.

| Rm # | Wall Lengths (N,S,E,W) (m) | W/L Ratio | Aver.* Fl.Area(m2) | Wall Ht.(m) | Wall Width (cm) | Features (not complete?)& Etc. |
|------|-------------------------------|--------------|-----------------------|----------------|-----------------------|-----------------------------------|
|------|-------------------------------|--------------|-----------------------|----------------|-----------------------|-----------------------------------|

Rooms For Which Relationship To Other Rooms Is Not Known:

| | (N) | (S) | (N-S axis) | | | | |
|----|------------------------|--------|------------|-------------|-------|-------|---|
| 30 | est. 0.76-1.52 | x 1.68 | 0.68 | 1.92(est.) | 0.46 | | |
| 22 | 0.99, 0.99, 1.98, 1.98 | | 0.50 | 1.96 | 0.46 | 33-36 | |
| | (E-W) | (N-S) | | | | | |
| 41 | est. 1.55 | x 2.23 | 0.35 | 3.46(est.) | | | |
| 42 | est. 8.38 | x 2.44 | 0.29 | 20.45(est.) | | | 5 columns along N. wall |
| 25 | 2.44, 2.90, 1.68, 2.29 | | | | 21-46 | | 3 fls., vent of Kiva 6 intrudes upper fl. |

Rooms 25, 26, 27, 29, and possibly 28 are not considered rooms but interstitial spaces surrounding kivas. Partial rooms for which complete dimensions are not available include 29, 35, 36, 37, and 52. There is some controversy over the location of the Rm. 42 east wall, but the author has chosen to believe Ray Rixey who believes that one course of the east wall was present during excavation/stabilization.

The following rooms were not included in tables of the late 1000s/mid 1100s data because I found them after this section was completed. Rooms with T designations, e.g., Room 50 (T28), are ones that Vivian in 1949/1950 named the unit "Room 50" while Walter Taylor in 1939 gave that room a designation of "Room 28." Vivian duplicated Taylor's numbers elsewhere in the ruin. Taylor's rooms were all located in the southern end of the roomblock. I had some difficulty deciding what Taylor's Room 24 corresponded to in Vivian's numbering system.

24

24A

2 fpts on 2 fls?

1E of 24&24A

2E of 24&24A

23A(24??)

49(T26)2.13, 1.91, 3.86, 3.88

4 pits-unk. funct.

50(T28)1.92, 2.13, 2.44, 2.43

51(T29) 5.33 x 2.19

0.41 11.70(est.)

0.69

28-46

Fl.1-fpt, 2 ashpits

52(T30)2.29, 2.13, 3.20, 2.29

Table A.13. Site Bc 51 aboveground room roofing information.

| Room # | Material and Labor (listed lowermost first) | Size (cm) | Species | Length (m) | Dates | Wall Sockets | Spacing (cm) Beams or Sockets | References+ |
|------------------------|---|-------------------------|--|-------------------------|---|--|----------------------------------|--|
| 3 (substructure?) | a)7 parallel beams | 8.98- 11.43, 1=20.32 | all pinyon 1.58- 2.14 | 1043B 1077+ +1-10 | 6 latilla - E no dimensions | | 15.24-30.48 | Archives #1707 |
| 4 (substructure?) | b)6 slit poles.....1.58..juniper c)reed matting-groups.....021..Equisetum of 7, tied in 2 strands of yucca fiber | | | | 7 latilla - E. ? # in W. wall | | | Archives #1708 Vivian 1950:34 |
| 5 (substructure?) | | | | | 8 latilla - E ? # in W. (extend through wall) | | | Archives #1709 Vivian 1950:38 |
| 7 | a)7 parallel beams | 8.98- 11.43, 1=20.32 | all pinyon 1.58- 2.14 | 1043B 1077+ +1-10 | | | | Kluckhohn & Reiter 1939:33, Archives #1710 Bannister 1965:133 |
| 8 | several small pieces of wood | 10.16 | juniper | frag. | | | | Archives #1711 |
| 16A (substructure?) | "large vig in wall" | | | | | | | |
| 16B (substructure?) | 1 piece of wood | ? | ? | frag. | | 9 latilla - E 8 latilla - W | 10.16-15.24 | Archives # |
| 17 | 12 pieces (17 frags) | 6.99 | cottonwood 1.14 (frag.) | | | 9 latilla - W (E wall eroded) | 10.16-15.24 | Archives # |
| 18 | a)6 poles b)branches.....? c)adobe.....5.08 thick d)reads like Rm. 7.....?.. Equisetum? or arkali sacaton | 10.16 10.16 10.16 | cottonwood pinyon&juniper thick Equisetum? or arkali sacaton | | | 12 latillas - E&W (Archives #1717) 9 - W and 6 -E (Archives #228) | 11-20=E wall 31= W. wall | Kluckhohn and Reiter 1939:33 |
| 19 | 6 (2 part of 1 frag) | 5.08-7.62 10.16 | cottonwood 1.73 ? | (frag.) | | "inserted in walls running E-W" | | Archives #1719 |
| 21 (substructure?) | adobe impressions | | | | | | | Archives #1721 |
| 40 | (sockets in S wall from wall niche??) | | | | | | | |

+ References abridged to fit in this column.

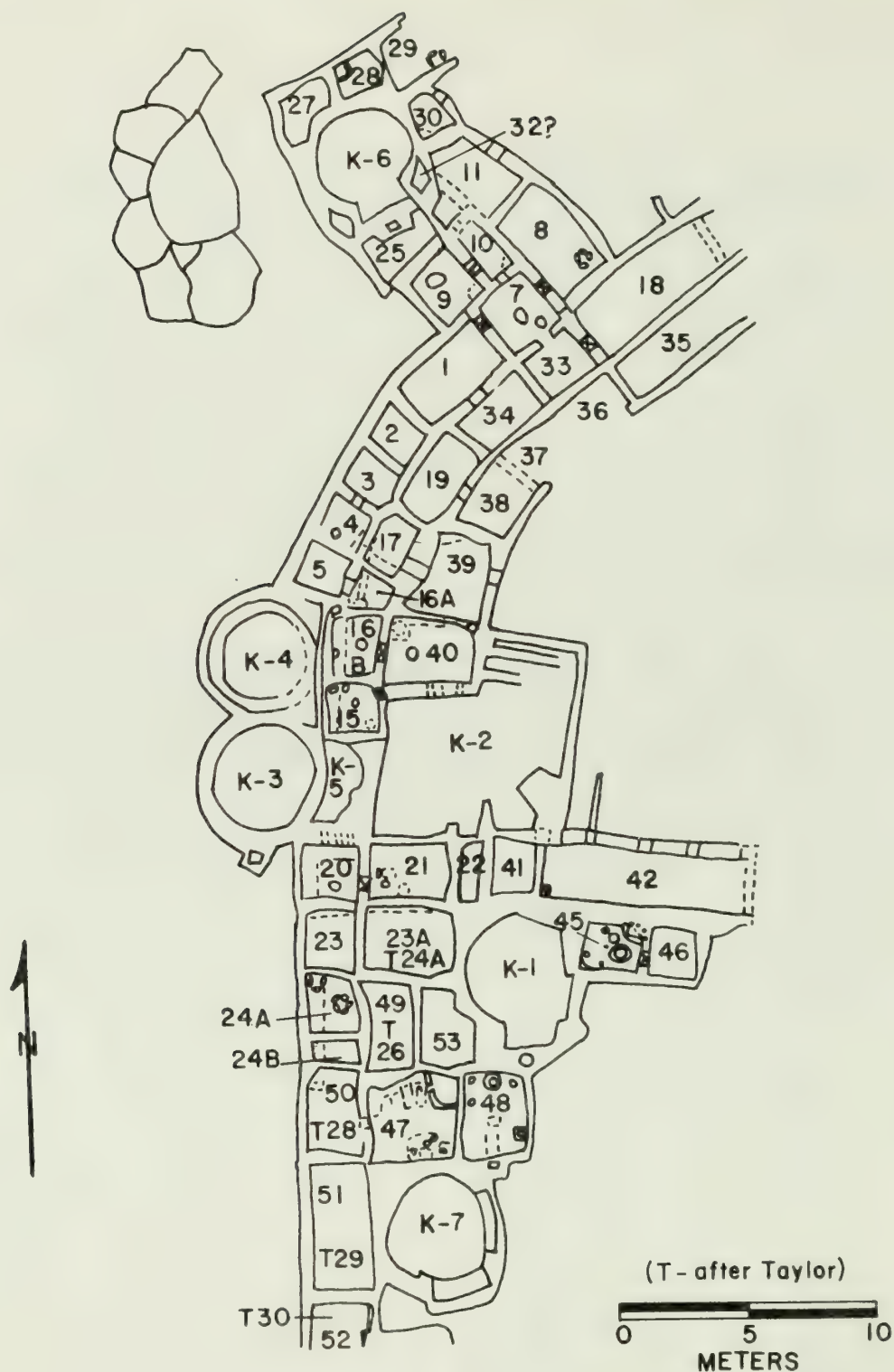


Figure A.104. Bc 51 (29SJ 395), plan view of late 1000s-middle 1100s construction (taken from aerial imagery, Remote Sensing Division of Chaco Center).

Table A.14. Site Bc 52 (29SJ 400), "Casa Sombreada."

Comments: Accurate maps for this site are not available and most of the information included in this table is derived from William Mulloy's unpublished manuscript (Chaco Center Archives #2102) and from student notes. Room groups described below are those which Mulloy distinguishes as intelligible construction units, listed in order of construction.

| Rm # | Wall Lengths (N,S,E,W) (m) | W/L Ratio | Fl.Area(m2) | Max. Wall Ht.(m) | Width Range (cm) | Floor Features (incomplete list?) & Other Comments |
|---|---|--------------|-------------|------------------------|------------------------|--|
| <u>Group 1 - KIVA II COMPLEX</u> | | | | | | |
| | (E-W) (N-S) | | | | | |
| 7 | 2.59 x ? | | | | 27 | Fl.1-central burn (not a firepit) |
| 16 | 3.47(E-W) x 0.94 | 0.27 | | | 31 | (no features) |
| 17 | 1.19(E-W) x 0.76 | 0.64 | | | | |
| 18 | 2.16 x 0.76 | 0.35 | | | | |
| <u>Group 2 - THE NORTHERN ROOMS</u> | | | | | | |
| 3 | 3.66 x 1.52 | 0.42 | | 0.98 | 21-31 | (no features) |
| 45 | 2.21,2.41,2.55,2.46 | 0.92 | | 0.67 | | Fl.1-fpt; Fl.2 - 2 fpts. |
| 46 | 2.59,2.21,2.46,2.36 | 1.00 | | 0.64 | 28-38 | (no features) |
| 35/11 | | | | | | |
| 36/13 | | | | | | |
| <u>Group 3 - ABOVE KIVA II COMPLEX</u> | | | | | | |
| 2 | | | | 0.46 | 37 | (no features) |
| 4 | | | | | | (no features) |
| 19 | 2.74(E. wall) | | | 0.46 | 34 | Fl.1-firepit |
| 15 | | | | | | 2 fls.-no feats. |
| 8 & 9 | | | | | | (no features) |
| <u>Group 4 - SOUTH OF KIVA II COMPLEX</u> | | | | | | |
| 37 | | | | | | (no features) |
| | (E-W) (N-S) | | | | | |
| 12 | 2.83 x 3.02 | 0.94 | | | 40 | (no features) |
| 30 | | | | | 34 | |
| | (NE-SW) (NW-SE) | | | | | |
| 20 | 3.35 x 1.83 | 0.55 | | | | |
| 21 | 2.46(NW), 1.80, 2.54, 2.90(E), 2.41(W) | | | | | slab-lined sq. fpt |
| 22 | 1.17(NW-SE)x irreg. | | | | | 2 fls; Fl.2-fpt. |
| 23 | 4.48(W) | | | | 28 | central oval fpt. |
| 24 | 2.65(N-S)x1.55(E-W) (irreg. shape) | | | | 23-28 | wall murals on cliff wall |
| 27 | | | | | 31 | |
| 26 | | | | | 31 | |

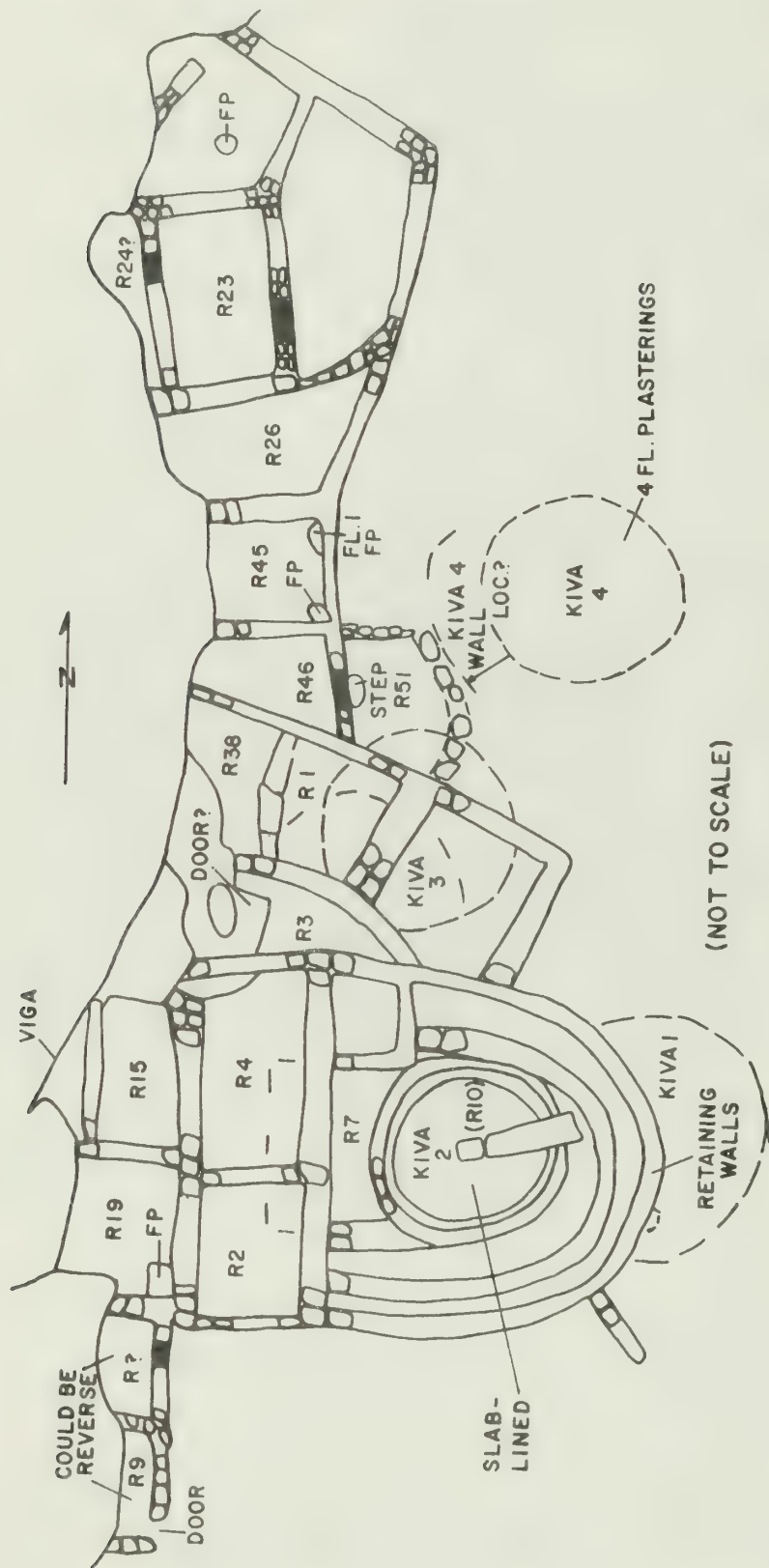


Figure A.105. Bc 52 (29SJ 400), late 1000s-1200s construction.

Table A.15. Site Bc 53 (29SJ 396), "Roberts' Site," "Ignorance Hollow."

Comments: Two groups of rooms have been isolated as individual construction episodes. Group #1 appears to have been the initially constructed and consists of rooms 6, 7, 8, 10, and 11. To Group #1, rooms 12, 13, and 14 were subsequently added. Kiva B and subsequently D with B are thought to have been associated with this group. Group #2, located west of Group #1, consisted originally of rooms 1 (possibly a smaller form), 2, 3, 16, 17, and 18. To Group #2 was subsequently added Room 4. Kiva A is thought to have been associated with this group. Rooms 9 and 15 were added onto the east side of the roomblock at some unknown time and have not been lumped in either. Kiva C is thought to have been associated with this group and both of these rooms and the kiva may have been an extension of Group #2, although this remains indefinite.

| Rm # | Wall Lengths (N,S,E,W) (m) | W/L Ratio | Floor Area(m2)* | Wall Ht.(m) | Thick. (cm) | Fl. Feats.(all?) & Other Comments |
|---|-------------------------------|--------------|--------------------|----------------|----------------|--|
| <u>Group # 1</u> (Kiva D, Fpt.#1=A.D.1150+17; Kiva D, Fpt.#2=1150+21 [assoc. archaeomag.] .) | | | | | | |
| 6 | 3.81, 3.91, 2.49, 2.39 | 0.63 | 9.42 | | | |
| 7 | 3.91, 4.18, 2.44, 2.36 | 0.59 | 9.72 | 1.93 | | |
| 8 | 3.84, 3.81, 2.44, 2.49 | 0.64 | 9.43 | 1.73 | | Fl.1-oven?; 2 fls. |
| 10 | 4.08, 3.94, 2.18, 2.29 | 0.56 | 8.96 | 1.88 | | |
| 11 | 3.73, 3.63, 2.13, 2.21 | 0.59 | 7.98 | 1.55 | | ? |
| <u>Group # 1 Additions:</u> | | | | | | |
| 12 | 3.30, 3.75, 1.65, 1.73 | 0.48 | 5.96 | 0.64 | 25-42 | heating pit or fpt |
| 13 | 2.05, 2.88, 3.71, 3.54 | 0.68 | 8.79 | | | (no notes) |
| 14 | 2.95, 3.29, 1.62, 1.84 | 0.55 | 5.16 | | | (no notes) |
| <u>Group # 2</u> (Kiva A - Fpt#1=A.D.1115+37; Fpt#2=A.D.1130+42 [both archaeomag.] .) | | | | | | |
| 1A | 2.95, 3.04, 2.33, 2.22 | 0.76 | 6.65 | | | (Room 1 may have been smaller in 1st construction...Rm 1A) |
| 1B | 3.97, 4.74, 2.35, 2.19 | 0.52 | 9.64--- | | | Fl.1- charcoal? pit; Fl.2-fpt. |
| 2 | 2.81, 2.64, 2.35, 2.17 | 0.83 | 6.16 | | | mas. enclosure for a burial |
| 3 | 3.30, 2.81, 2.80, 2.58 | 0.88 | 8.42 | | | (no features) |
| 16 | 3.48, 3.15, 1.81, 1.61 | 0.52 | 5.47 | | | (no notes) |
| 17 | 3.11, 2.95, 1.60, 1.60 | 0.53 | 4.85 | | | (no features) |
| 18 | 2.52, 2.84, 1.60, 1.60 | 0.60 | 4.30 | 1.78 | 30-33 | (no notes) |
| <u>Group #2 Additions:</u> | | | | | | |
| 4 | 2.74, 2.41, 2.07, 2.07 | 0.80 | 5.11 | | | (no notes) |
| <u>Rooms 9 and 15</u> (Kiva C - fpt=A.D.1120+? [archaeomag.] .) | | | | | | |
| 9 | 3.60, 3.40, 1.70, 1.83 | 0.50 | 6.18 | 0.81 | 23-41 | 3 fls.(substr.) |
| 15 | 1.45, 1.83, 2.70, 1.85 | 0.72 | 3.28 | | | |

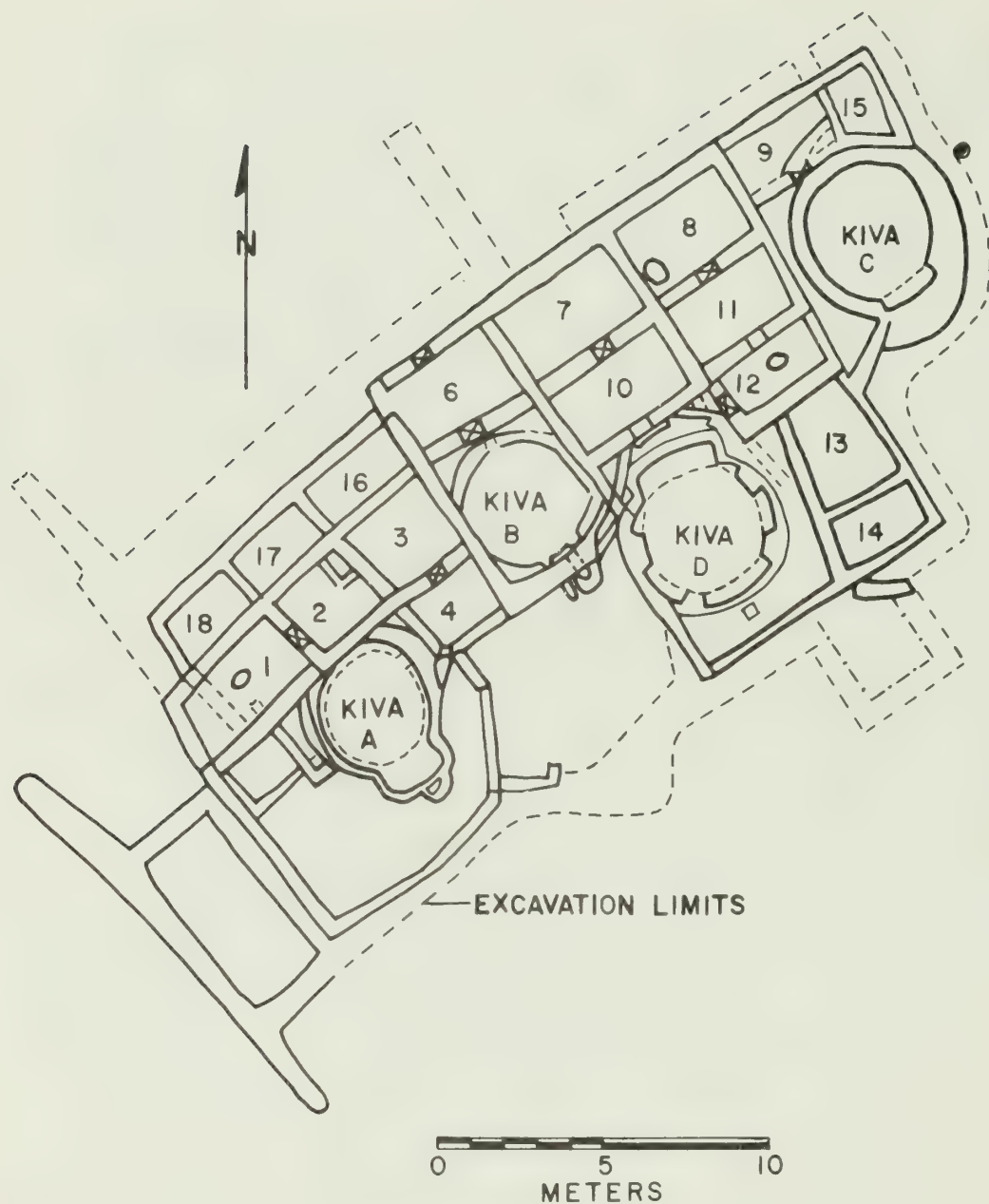


Figure A.106. Bc 53 (29SJ 396), plan view of the late 1000s-middle 1100s construction (Chaco Center Archives #2103).

Table A.16. Site Bc 54 (29SJ 1922), "Ripley Bullen's Site."

Comments: This site was badly eroded when excavated. Bullen (1941) believed that the best preserved rooms (rooms 1, 2, 4, and 5) were constructed as a unit along with Kiva B. The other pit structures, kivas A and C were excavated, along with other wall segments which cannot be certainly identified as rooms.

| <u>Rm #</u> | <u>Wall Length (m)</u> <u>(N,S,E,W)</u> | <u>W/L</u> <u>Ratio</u> | <u>Fl.</u> <u>Area(m2)</u> | <u>Wall</u> <u>Ht.(m)</u> | <u>Thick.</u> <u>(cm)</u> | <u>Fl. Features</u> <u>(incomplete)</u> |
|-------------|--|----------------------------|-------------------------------|------------------------------|------------------------------|--|
| 1 | ? , 1.98, 3.00, 2.88 | 0.67 | 5.82 | 1.37 | | Fl.1-fpt; Fl.2-sm. fpt.; Fl.3-fpt |
| 2 | 1.80(E-W) x 2.13(N-S) | 0.85 | 3.83 | 1.22 | | Fl.1-fl.burn; Below Fl.1-fpt |
| 4 | 1.57, 1.62, 2.39, 2.59 | 0.64 | 4.20 | 1.42 | | Fl.-bin, fpt. |
| 5 | 1.52(S.wall)x3.0(E.wall) | 0.51 | 4.57 est. | 1.60 | 25-38 | Fl.1-fpt.; Fl.2- featureless |

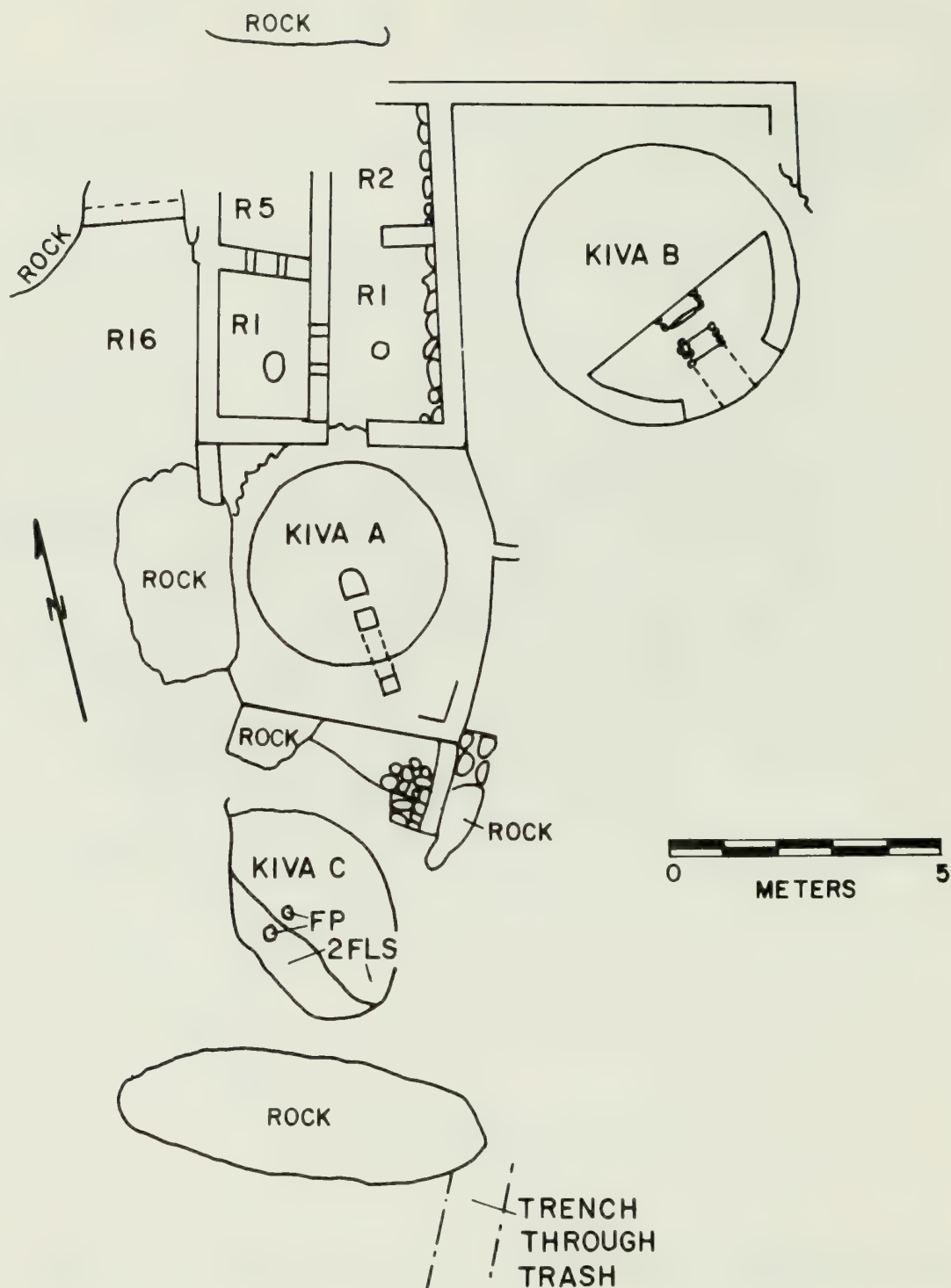


Figure A.107. Bc 54 (29SJ 1922), plan view of the late 1000s-middle 1100s construction (Chaco Center Archives #2086c).

Table A.17. Site Bc 56 (Part of 29SJ 753).

Comments: This site was badly eroded subsequent to excavation by Reiter and the U.N.M. field school in 1941 and was in too poor condition to remap by photogrammetry. The map presented in Figure A.108 was reconstructed from field notes.

| <u>Rm #</u> | <u>Wall Length (m)</u> <u>(N,S,E,W)</u> | <u>W/L</u> <u>Ratio</u> | <u>Fl.</u> <u>Area(m2)</u> | <u>Wall</u> <u>Ht.(m)</u> | <u>Thick.</u> <u>(cm)</u> | <u>Fl. Features</u> <u>(incomplete)</u> |
|-------------|---|----------------------------|-------------------------------|------------------------------|------------------------------|--|
| 1 | 2.41, 1.63, 2.24, 2.64 | | | 1.63 | 37-47 | (no good floor) |
| 2 | 2.13, 1.83, 1.85, 1.87 | | | 1.17 | 47-51 | (no feats.) |
| 5 | 1.57, 2.23, 1.47, 2.49 & 0.71(2 segments of W. wall) | | | 1.35 | | (no feats.) |
| 7 | N & W (single wall=4.93, S = 2.18, E = 3.33 | | | 1.52 | | (not completely dug?) |
| 9 | 2.24(N-S) x 1.83(E-W) | | | | | (no completely dug?) |

Room 6 and 8 may have been partially enclosed portions of the plaza surface?

| | | |
|---|--------------------|---------|
| 6 | N = 2.24; W = 1.95 | firepit |
| 8 | N = 1.83; W = 2.24 | firepit |

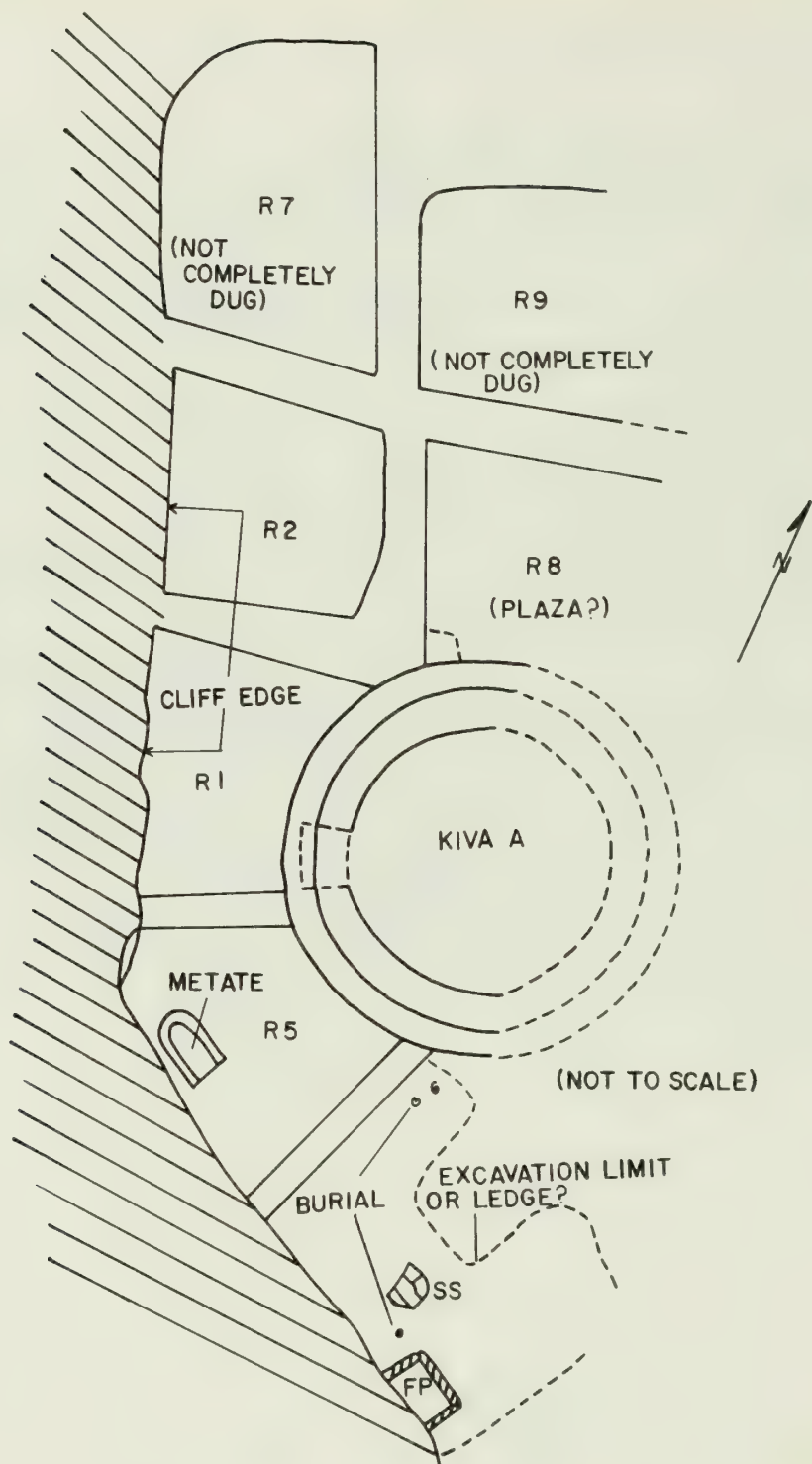


Figure A.108. Bc 56 (29SJ 753), rough sketch of late A.D. 1000s-middle 1100s roomblock (extracted from Chaco Center Archives notes and maps 250, 251, 253A, 254, and 255).

Table A.18. Site Bc 57 (29SJ 397).

Comments: It appears as if the central portion of the site including rooms 2, 3, 4, 5, 6, 7, 9 formed the initial portion of Bc 57 associated with the upper site walls (Figure A.109). Archaeomagnetic dates indicate that Kiva C to the east was the first constructed (during the A.D. 1120s); it is uncertain whether an earlier room or kiva existed beneath kivas A and B also associated with this period of building. (The positions of A and B and remaining wall abutments indicate that some form of these rooms or pit structures probably was present.) Room 8 at the northeast end of the roomblock appears to have been remodeled in conjunction with the remodeling of Kiva C. Room 1 was added subsequently to the west end of the house. It is not known when Kiva D south of Room 1 was built.

| Rm # | Wall Lengths (m) (N,S,E,W) | W/L Ratio | Floor Area(m ²) | Wall Ht.(m) | Thick. (cm) | Floor Features (incomplete?) |
|--------|-------------------------------|--------------|--------------------------------|----------------|----------------|---------------------------------|
| 1 | 3.50, 4.10, 3.87, 3.61 | 0.98 | 14.29 | | 36-43 | firepit |
| (* | 3.53, 3.63, 3.77, 3.45) | 0.99 | | | | |
| 2 | 3.81, 4.06, 2.79, 2.85 | 0.72 | 10.52 | | | |
| (* | 3.73, 3.84, 2.94, 2.98) | 0.78 | | | | |
| 3 | 4.08, 4.02, 2.92, 2.88 | 0.72 | 11.27 | 1.44 | 36-64 | firepit |
| (* | 4.07, 4.06, 2.92, 2.74) | 0.70 | | | | |
| 4 | 3.90, 4.02, 3.00, 3.07 | 0.77 | 12.05 | 1.58 | 33-46 | firepit |
| (* | 3.99, 4.03, 3.07, 3.04) | 0.76 | | | | |
| 5 | 4.05, 3.91, 3.06, 2.84 | 0.74 | 11.83 | | | |
| (* | 3.96, 3.83, 2.99, 2.97) | 0.76 | | | | |
| 6 | 3.98, 3.67, 3.48, 3.56 | 0.92 | 13.47 | 1.78 | | firepit |
| (* | 3.84, 3.61, 3.58, 3.53) | 0.95 | | | | |
| 7 | 3.16, 3.15, 2.86, 3.00 | 0.93 | 9.33 | | | |
| | (remodeled??) | | | | | |
| 8 | (remodeled) final form | 0.71 | 5.35 | | 30-46 | |
| (* | 3.05, 2.74, 2.13, 1.98) | | | | | |
| 9 | 4.07, 3.87, 3.61, 3.53 | 0.90 | 13.92 | | | mealing bin |
| (* | 3.96, 3.81, 3.61, 3.35) | 0.89 | | | | |
| Kiva A | 3.50, 3.50, 4.15, 4.00 | 0.86 | 13.97 | | | (original features |
| Room | (*3.40, 3.40, 4.05, 4.00) | 0.85 | | | | not known) |
| | (remodeled) | | | | | |

NOTE: In the listing of wall lengths, north wall = the northwest one with relation to magnetic north; south = southeast; east = northeast and west = southwest. This was done to follow the directions used in most of the field notes (student notes on Room 6 are the exception).

* Wall lengths listed in student notes; other lengths from aerial photogram-metric map.

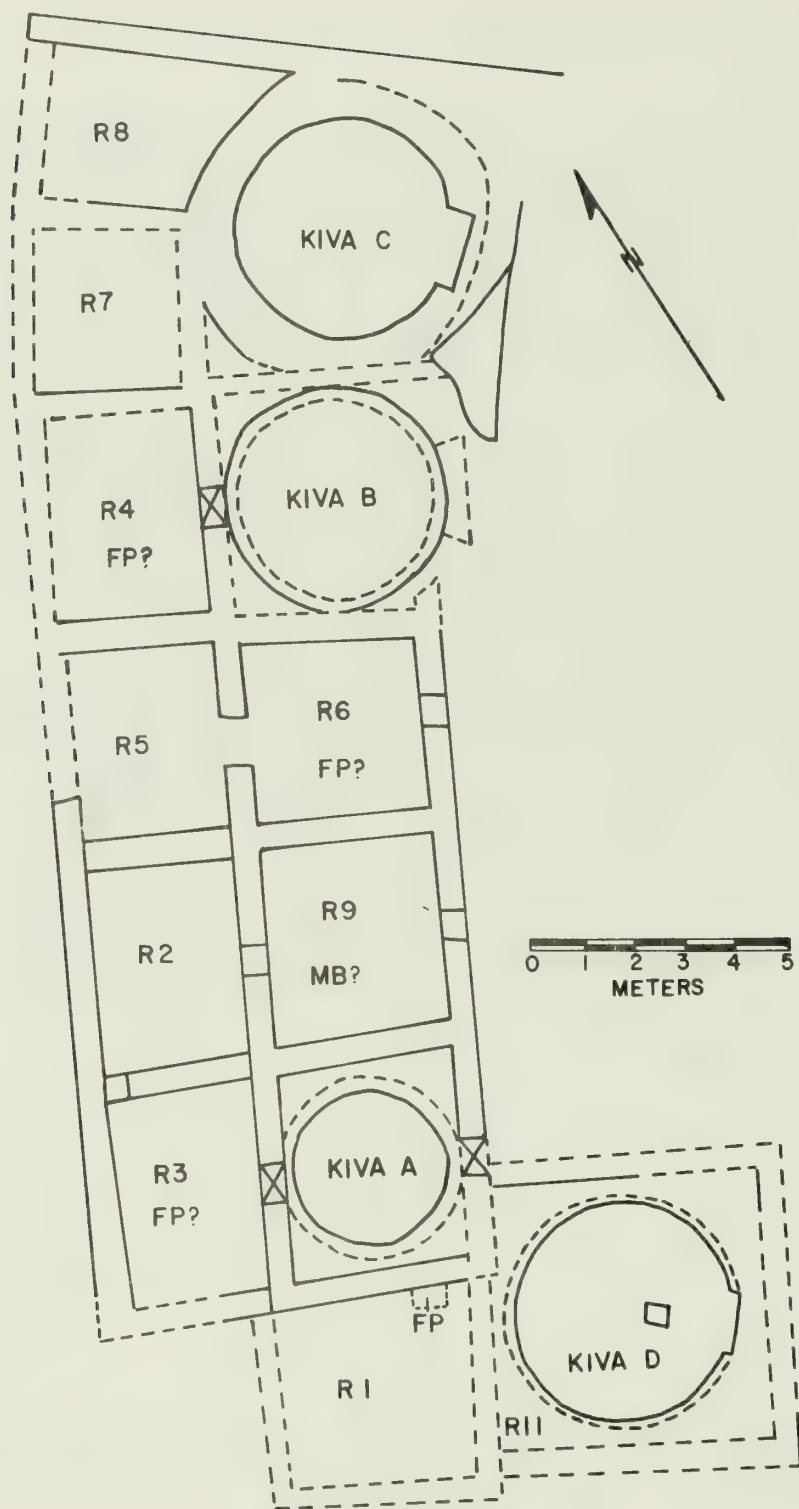


Figure A.109. Bc 57 (29SJ 397), plan view of the late 1000s-middle 1100s roomblock (Chaco Center Archives #692).

Table A.19. Site Bc 58 (29SJ 398).

Comment: Excavated during the 1947 field season by the University of New Mexico field school, supervised by Carol Burroughs and Stanley Stubbs under the direction of Paul Reiter. The site consists of 12 or 13 rooms and 2 kivas. Rooms built on trash; Mathews (personal communication 1976) believes that this site dates roughly to the late A.D. 1000s - early 1100s although interestingly no troughed metates were reported from the site and survey records say "PI through PIII." Suite #1 (not original designation) at SW end of room block had two occupation levels. Originally two living rooms fronting two smaller storage rooms; rooms 9, 2, and 5 may have been added to this suite later (Cornett 1947: 3-4). Room 6 may have been a plaza work area which was converted to two fully enclosed rooms. Nothing is known about rooms 12 and 8, but they may also have been associated with this southern suite. The latter appears to be just an interstitial space adjacent to Kiva A. Cornett (1947:4) says that rooms 1, 10, 11, and 14 may also form a unit. Kivas B and C both underlie Room 11. This site had good floor surfaces unlike Bc 59, but features listed may not be associated with contemporaneous surfaces since these were not often differentiated in the few notes available.

| Rm# | Wall Lengths (m) (N,S,E,W)* | W/L Ratio | Fl.Area (m2)* | Max. Wall Ht.(m) | Wall Thick. (cm) | Fl. Features (not complete) listing?) |
|---------------------------|---|--------------|------------------|---------------------|---------------------|--|
| <u>Suite #1</u> | | | | | | |
| 3 | 1.97,2.66,2.77,2.61 | 0.86 | 6.27 | 1.62 | | 2 fls.; firepit?; poss. work area on Fl.1-no notes |
| 13 | 2.63,2.70,2.26,2.26 | 0.85 | 6.08 | | | firepit - location unknown |
| 4 | 1.86,1.89,2.46,2.43 | 0.77 | 4.62 | | | trash filled; roofing material |
| 7 | 1.85,1.83,2.49,2.45 | 0.75 | 4.55 | | | floor burn(not a firepit) |
| Added Later: | | | | | | |
| 2 | 2.99,3.02,3.24,3.44 | 0.90 | 9.91 | | | floor burn(not a firepit), pit against E. wall(2 fls?) |
| 5 | 1.85,1.87,1.57,0.85 | 0.85 | 2.92 | 1.88 | | 2 firepits-loc. unknown |
| Also Part of this Suite?: | | | | | | |
| 9 | (partial) | | | | | bin along S. wall; firepit in SE corner; bowls |
| 6 | (2 rooms? superimposed over earlier earlier plaza area) | | | | | Fl.2-mealing bin, other slab frags.(more bins?) |
| 12 | 0.94,1.68,2.22,2.31 | 0.58 | 3.02 | | | (no notes) |
| 8 | (not measured) | | | | | (no notes) |

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Table A.19 continued.

| <u>Rm#</u> | <u>Wall Lengths (m)</u> <u>(N,S,E,W)</u> | <u>W/L</u> <u>Ratio</u> | <u>Fl.Area</u> <u>(m2)</u> | <u>Max.</u> <u>Wall</u> <u>Ht.(m)</u> | <u>Wall</u> <u>Thick.</u> <u>(cm)</u> | <u>Fl. Features (not complete)</u> <u>listing?)</u> |
|------------|---|----------------------------|-------------------------------|---|---|--|
|------------|---|----------------------------|-------------------------------|---|---|--|

Suite #2?

1 upper (substructure present but config. unknown) central firepit
2.11,1.89,2.68,3.18 0.68 5.68

Floor areas and wall lengths from averages of digital planimeter readings.

10 3.09,3.15,2.27,2.84 0.87 8.37 firepit

11 2.70,2.50,3.02,3.04 0.86 7.92 3 firepits on different
(Room above Kiva B) levels (floors?)

14 2.55,2.58,2.27,2.18 0.87 5.65 (no features?)

Floor areas and wall lengths form averages of digital planimeter readings.

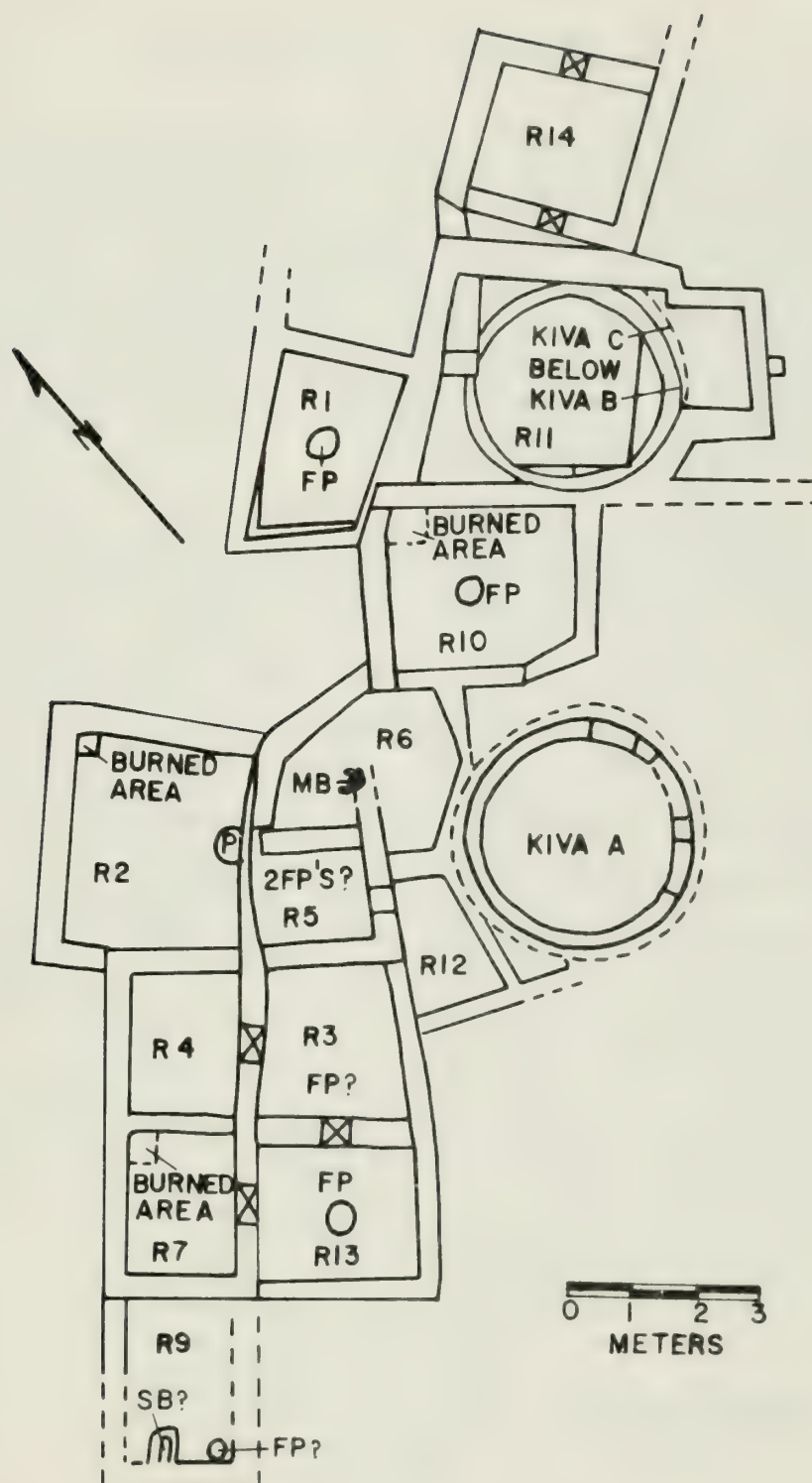


Figure A.110. Bc 58 (29SJ 398), plan view of the late 1000s-middle 1100s roomblock (Chaco Center Archives #692).

Table A.20. Site Bc 59 (29SJ 399), "Tom Mathews' Dig."

Comment: Mostly excavated in 1947 by the U.N.M. field school under the field supervision of Tom Mathews and the direction of Paul Reiter (dug 13 rooms and 3 kivas). Gordon Vivian in 1950 ran N.P.S. ruins stabilization program and dug the rest of the site including two more kivas. Student notes have been lost from 1940s work and Mathews' manuscript on rooms 1 through 7 is all that remains of the detailed records. Since good maps are not available of this ruin, only the 1-7 dimensions are listed below. Cornett (1947:5) indicates that rooms 9/10, 11, and 6 may have formed a unit with Kiva II. Possibly 4/5 belonged to this group. Later upper walls divided rooms 9/10, 4/5, 12/Y. Cornett (1947:5) also thinks rooms 1, 2, 12, and Kiva IV may have been another unit. Floor surfaces were difficult to distinguish at this site and contemporaneous surfaces are not noted in the records available.

| Rm # | Wall Lengths (m) (N,S,E,W) | W/L Ratio | Max. Wall Ht.(m) | Thick. (cm) | Floor Features (not complete ?) & Other Comments |
|------|-------------------------------|--------------|------------------------|----------------|---|
| 1 | 2.82,2.90,1.70,1.73 | 0.60 | 1.27 | 23-53 | floor levels uncertain; no feats. |
| 2 | 3.05,2.84,1.93,1.83 | 0.64 | 1.22 | 28-31 | floor levels uncertain |
| 3 | 3.05,2.87, ? ,2.18 | 0.74 | 1.83 | 25-48 | Gallup B/w jar with plug set into floor? surface |
| 4/5 | 1.99,1.97,2.39,2.46 | 0.81 | 1.52 | 20-31 | stone-lined cist |
| 6 | 1.67,1.83,2.41,2.39 | 0.73 | 1.78 | 23-31 | possible central firepit |
| 7 | 3.09?,1.98,1.47,2.31 | ? | 1.52 | 25-31 | 3 fls; upper=firepit;middle=3 mealing bins;lower=featureless |
| 8 | | | | | 4 floors - featureless? |
| 9/10 | | | | | |
| 11 | | | | | circular wall niche with stone plug |
| 12 | | | | | firepit |
| 13 | | | | | |
| 14 | | | | | |
| X | | | | | |
| Y | | | | | |

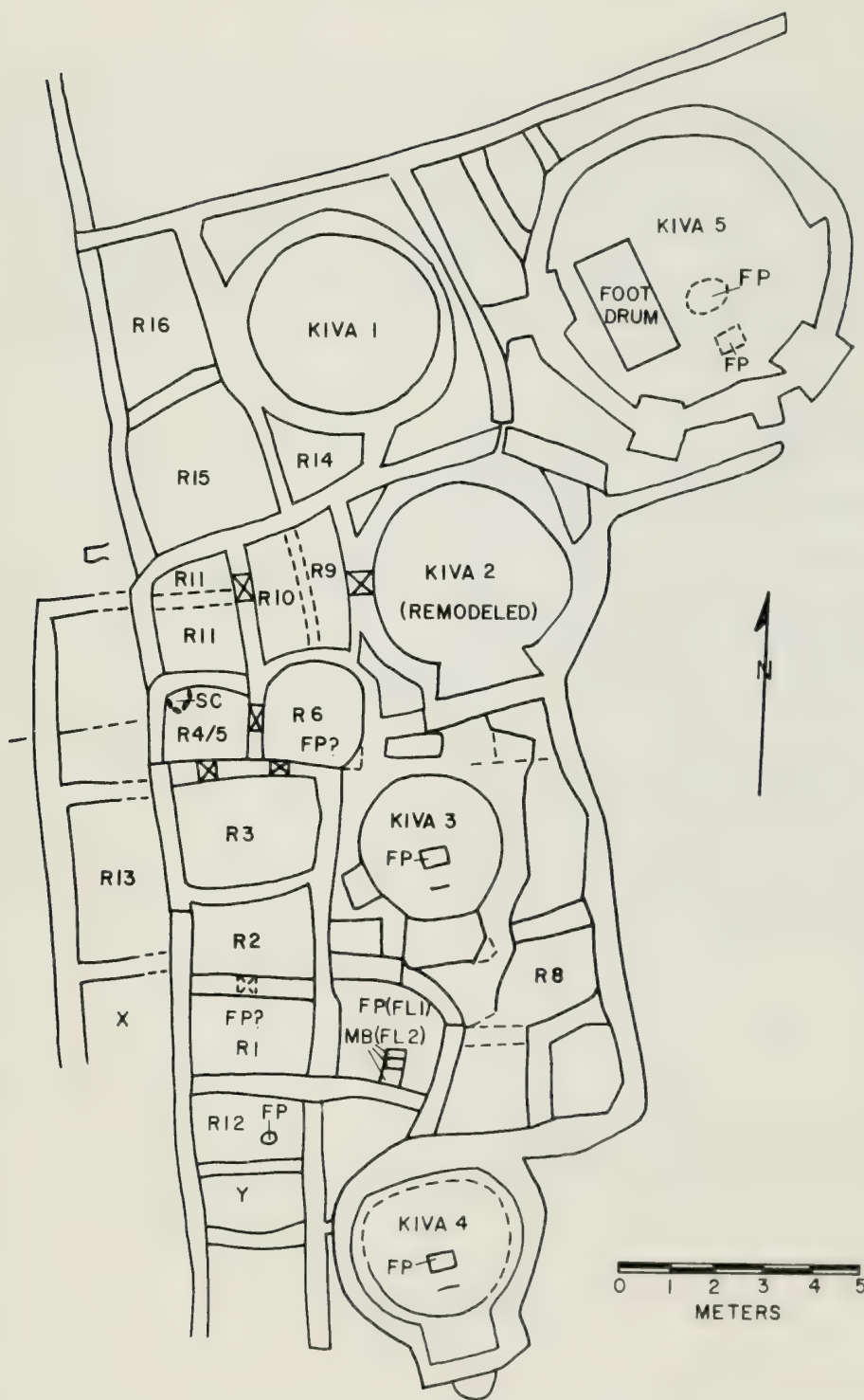


Figure A.111. Bc 59 (29SJ 399), plan view of the late 1000s-middle 1100s(?) roomblock (Chaco Center Archives #1048).

Table A.21. Site Bc 126 (29SJ 838), "Hutch's Site."

Comments: This site has been divided into two room groups which appear to represent individual suites. Suite #1 (the southern group of rooms) appears to have been the first constructed, the west wall of the northern group (Suite #2) butting up against it. However, since I have no excavation notes, this remains unverified. These two room groups are based on their juxtaposition with relation to the two pit structures, but their actual relationship to one another and the kivas remains unknown. NOTE: I have taken the liberty of numbering the rooms and lettering the pit structures as their original designations are unknown to me. Floor features are no longer visible, and none was noted on the surviving map (Figure A.112).

| <u>Rm #</u> | <u>Wall Lengths (m)</u> <u>(N,S,E,W)</u> | <u>W/L</u> <u>Ratio</u> | <u>Floor</u> <u>Area(m2)</u> | <u>Max.</u> <u>Wall</u> <u>Ht.(m)</u> | <u>Thick.</u> <u>(cm)</u> |
|---|---|----------------------------|---------------------------------|---|------------------------------|
| <u>Suite # 1</u> (southern groups associated with Kiva A) | | | | | |
| 1 | 3.45, 3.09, 3.30, 3.25 | 0.997 | 11.97 | | 36 |
| 2 | 3.09, 2.70, 3.05, 2.65 | 0.98 | 8.80 | | |
| <u>Suite # 2</u> (northern group associated with Kiva B) | | | | | |
| 3 | 2.69, 2.72, 1.80, 1.80 | 0.67 | 5.20 | | |
| 4 | 2.75, 3.15, 2.80, 2.80 | 0.95 | 7.94 | | 43-70 |
| 5 | 2.65, 2.75, ? , 2.50 | 0.93 | 8.05 | | 42-57 |
| 6 | 2.25, 2.65, 2.30, 2.30 | 0.94 | 6.87 | | |

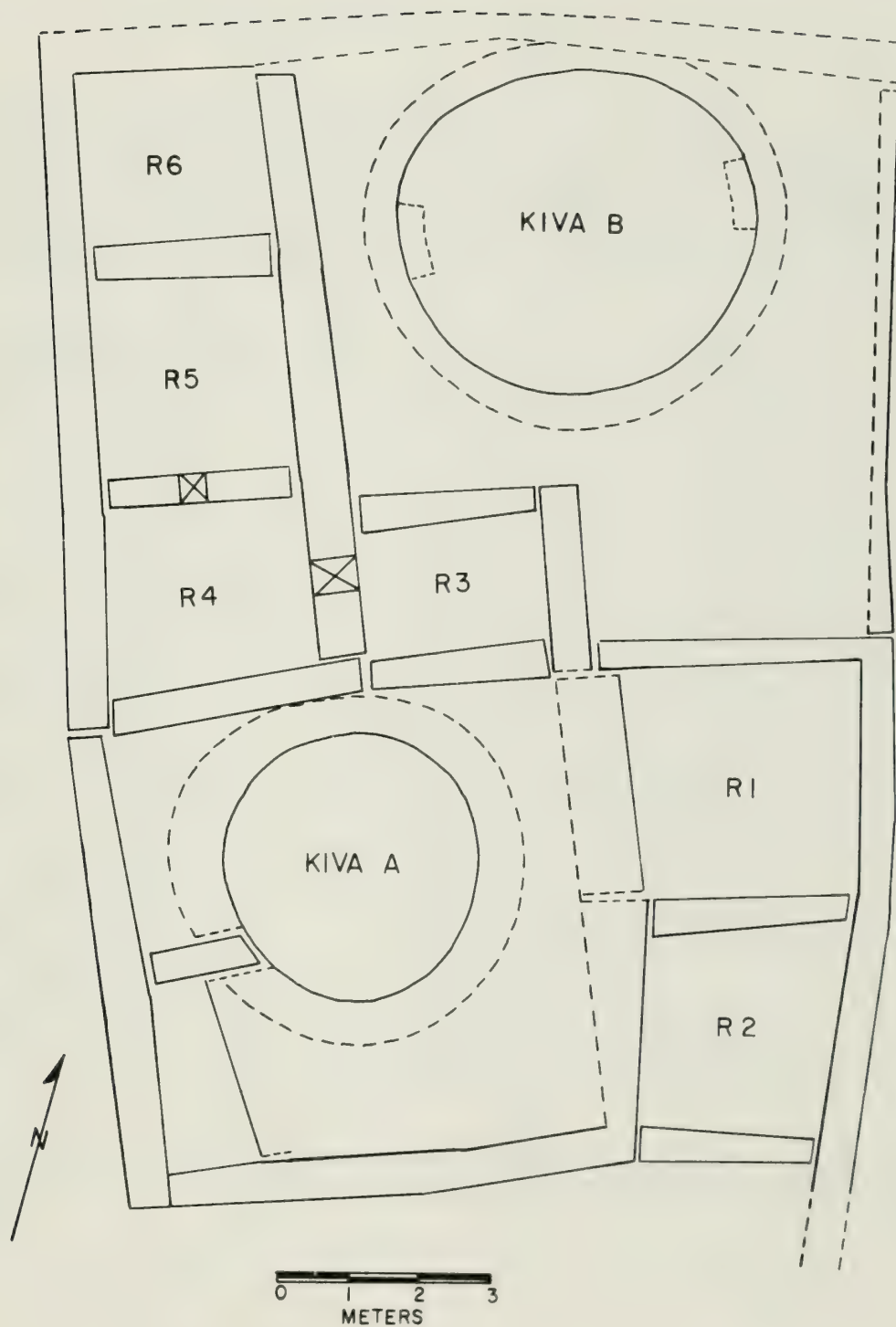


Figure A.112. Bc 126 (29SJ 838), "Hutch's Site," plan view of the late 1000s-middle 1100s(?) roomblock (Chaco Center Archives #1025).

Table A.22. Site Bc 192, Bc 193 (29SJ 1912), "Lizard House."

Comments: First building period includes rooms 5, 11, and 17 (lower floors), lower floors of 16 and 15 (subsequently replaced by Kiva C), rooms 14, 13, 12, 8, and possibly lower floors of rooms 6 and 7. The upper surfaces of rooms 6 and 7 were built during the second construction period and it is not certain that earlier floors of this period were present. Kiva B accompanied the original construction of the roomblock. Kiva C was built near the end of the initial construction period. Rooms 15a and 16a were used before Kiva C was built.

| Rm # | Wall Lengths (m) (N,S,E,W) | W/L Ratio | Floor Area(m ²) | Max. Wall Ht.(m) | Thick. (cm) | Floor Features (incomplete list?) & Other Comments |
|------|-------------------------------|--------------|--------------------------------|------------------------|----------------|--|
| 5 | 3.90, 4.53, 3.90, 3.91 | 0.95 | 16.35 | | | rect. unlined fpt. |
| 11 | 2.92, 2.71, 4.04, 3.90 | 0.70 | 11.92 | | | (no features) |
| 17 | 2.67, 2.46, 4.40, 4.14 | 0.60 | 11.67 | | | (no features) |
| 16a | 3.80, 3.76, 3.98, 4.25 | 0.92 | 15.49 | | | (no floor found) |
| 15a | 4.68, 4.64, 3.70, 3.96 | 0.82 | 18.29 | | | (no features) |
| 14a | 2.61, 2.49, 3.71, 3.77 | 0.68 | 9.91 | | | unlined central firepit |
| 13 | 2.66, 2.60, 3.64, 3.69 | 0.72 | 9.83 | | | 2 fpts.-1 circular sm., 1 lrg. rect. |
| 12 | 2.63, 2.66, 3.82*, 3.83 | 0.69 | 10.36/ 7.18 | | | rect. lined fpt; Y-shaped doorway |
| 8a | 2.74, 2.58, 3.84, 3.84 | 0.69 | 10.51 | | | several fl. burns (not firepits) |
| 7a | 2.78, 2.72, 1.94, 1.84 | 0.69 | 5.15 | | | (floor not dug) |
| 6 | 2.18*, 2.64, 0.95*, 1.89 | 0.72 | 5.38/ 5.01 | | | (floor not dug) |

* Rocks along the east sides of rooms 6 and 12 interrupt walls and floor surfaces; Room 12 - postulated full length listed; Room 6 - partial length listed.

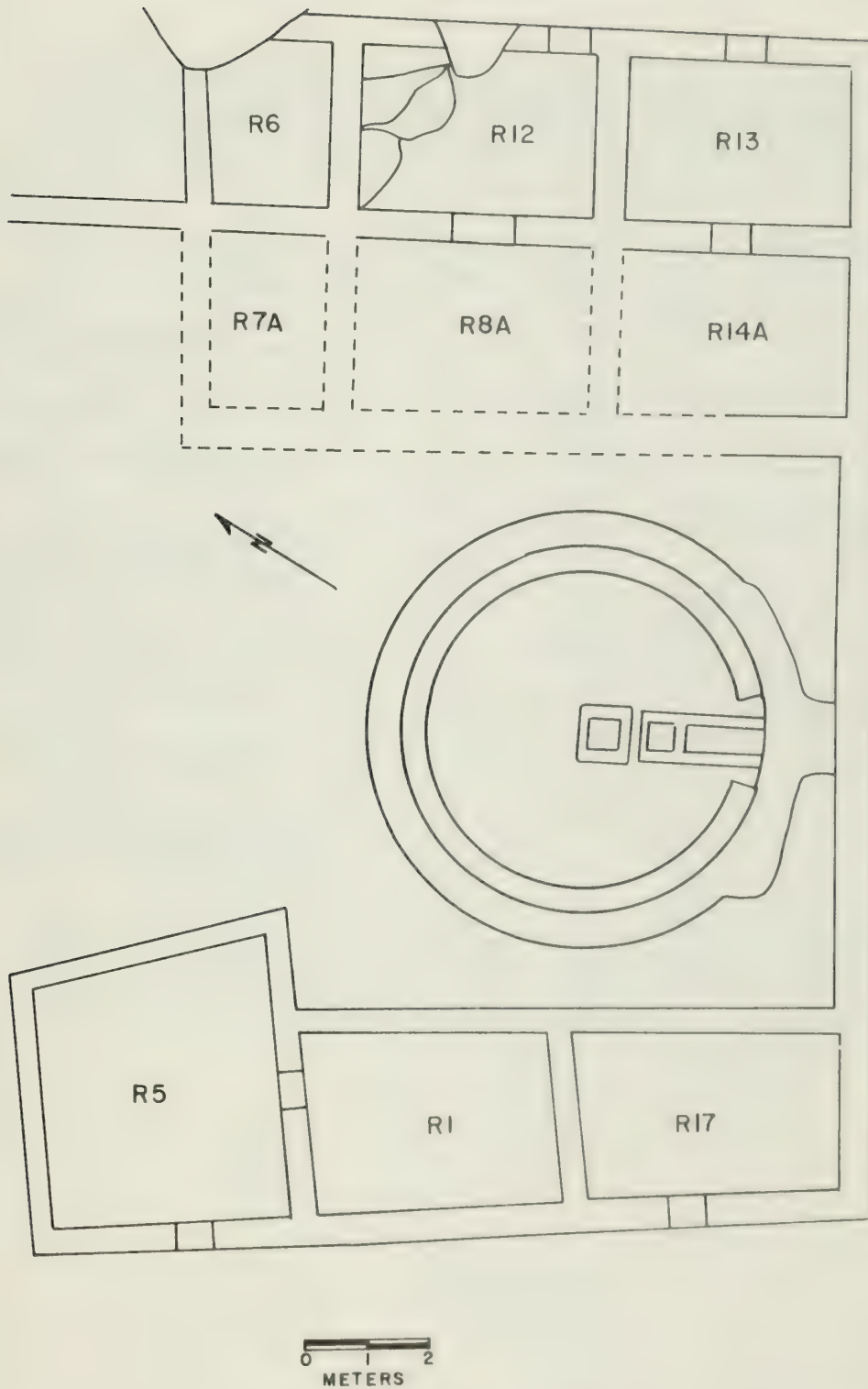


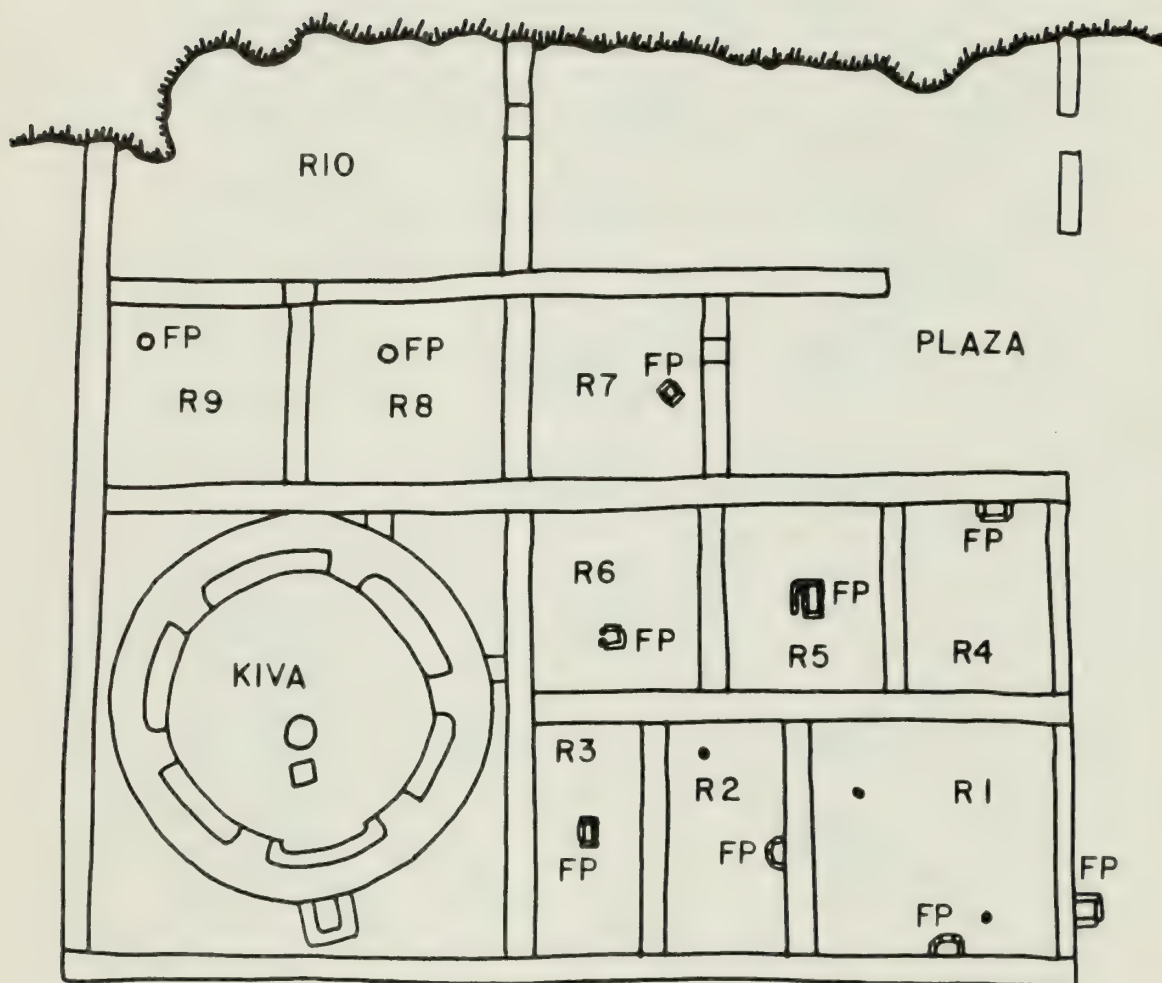
Figure A.113. Lizard House (29SJ 1912), first construction episode (Maxon 1963).

Table A.23. Site Bc 236 (29SJ 589), "Zorro Bradley's Site."

Comment: The rooms listed below seem to have been constructed as part of a single construction period sometime in the early A.D. 1100s in association with one kiva. Subsequent remodeling only affected the configuration of several walls not considered here. Complete dimensions of Room 10, associated with this building period, have not been listed since this room had partially slumped off into the Chaco Wash at the time of excavation.

| Rm # | Wall Length(m) (N-S),(E-W) | W/L Ratio | Floor Area(m2) | Wall Ht.(m) | Thick. (cm) | Floor Features & Other Comments |
|---|-------------------------------|--------------|-------------------|----------------|----------------|--|
| 1 | 3.63, 3.79 | 0.96 | 14.03 | | | Fl.1-fpt, 1 pit of unknown funct.; Fl.2*-firepit |
| 2 | 3.60, 1.92 | 0.53 | 6.70 | | | Fl.1-fpt, 2 postholes? |
| 3 | 3.57, 1.69 | 0.47 | 5.89 | | | W. wall niche; Fl.1-firepit Fl.2*-firepit |
| 4 | 2.96, 2.35 | 0.79 | 6.94 | | | Fl.1? or in fill?-firepit; Fl.2 (real surf.)-firepit; Fl.3*-broken down firepit |
| 5 | 2.90, 2.50 | 0.86 | 7.30 | | | Fl.1-central rect. firepit Fl.2-firepit, heating pit? 2 slab metates set in clay |
| 6 | 2.83, 2.62 | 0.93 | 7.50 | | | W. wall niche; Fl.1-fpt.; Fl.2-basin shaped pit |
| 7 | 2.77, 2.74 | 0.93 | 7.54 | | | Fl.1-shallow central basin Fl.2-firepit; Fl.3-firepit; Fl.4-firepit |
| 8 | 2.74, 3.08 | 0.99 | 8.53 | | | Fl.1-firepit; mealing bin & 2 metates |
| 9 | 2.71, 2.89 | 0.93 | 8.13 | | | Fl.1-firepit? |
| Continuous second floor beneath Rooms 8 and 9 - 2 firepits; 2 metates | | | | | | |

* Construction surfaces?



(UPPER FLOORS SHOWN)

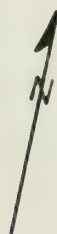


Figure A.114. Bc 236 (29SJ 589), plan view of early 1100s construction (after Bradley 1971).

Table A.24. Site Bc 362 (29SJ 827), "Charlie Voll's Site."

Comments: The following lists groups of rooms added in chronological order according to Voll (1964). These do not include the earliest constructed features at the site located beneath rooms 1, 19, and 20 and associated with Kiva 1. However, the upper forms of rooms 19/20, 2, and 1 (Figure A.115) probably form the core group of the last construction of the site. Subsequently, rooms 1, 3, 4, 5, 6, 7, 12, 15, and 16 were constructed in conjunction with Kiva 3. Then, rooms 13 and 14 were added. Rooms 9, 10, 11, and 18 were built. At this time, rooms 19 and 20 may have been subdivided although Voll does not note whether this accompanied the construction of the upper walls.

| Rm # | Wall Lengths (m) (N,S,E,W) | W/L Ratio | Floor Area(m ²) | Wall Ht.(m) | Thick. (cm) | Floor Features & Other Comments |
|------------------------------------|---|--------------|--------------------------------|----------------|----------------|---|
| <u>Initial Construction</u> | | | | | | |
| 1 | 1.98, 2.10, 3.32, 3.32 | 0.61 | 6.77 | 0.82 | 24-40 | Fl.1-fpt, mealing bin |
| 2 | 5.49, 5.79, 2.29, 2.29 (Fls. 2 & 3 - offset substructure - no features?) | 0.41 | 12.92 | 0.92 | | Fl.1-floor burns |
| 3 | 2.44, 2.74, 2.90, 3.05 | 0.86 | 7.70 | 0.79 | | Fl.1-storage bin (collapsed) |
| 4 | 1.37, 1.68, 1.89, 1.83 (Foundations: N, S, W = 24.38 cm; E = 54.86 cm) | 0.82 | 2.84 | 0.46 | | Fl.1-floor burn (not a firepit) |
| 5 | 2.74, 2.59, 1.98, 1.83 | 0.71 | 5.08 | | | Fl.1-no features |
| 6 | 2.44, 2.29, 1.83, 1.83 | 0.77 | 4.33 | | | rect. lined fpt. |
| 7 | 2.29, 2.44, 1.52, 1.68 | 0.68 | 3.78 | | | wall niche, unlined fpt., bench on 3 sides (lower walls?) |
| 12 | 2.13, 2.29, 1.68, 1.68 | 0.76 | 3.71 | | | Fl.1-4 mealing bins; Fl.2-fpt., jar set in mortar |
| 15 | 3.05, 2.74, 2.20, 1.89 | 0.71 | 5.91 | | | Fl.1-2 fl. burns |
| 16 | 2.20, 2.20, 2.29, 2.29 | 0.96 | 5.01 | | 21-27 | Fl.1-featureless Fl.2-slab-lined firepit |
| <u>Group #1 Additions</u> | | | | | | |
| 13 | 2.59, 2.29, 2.59, 2.44 | 0.97 | 6.14 | | | Fl.1-featureless (firepit once?) |
| 14 | 1.43, 1.58, 2.13, 2.01 | 0.73 | 3.12 | 0.45 | 21-40 | Fl.1-irregular & featureless |
| <u>Division of Rooms 19 and 20</u> | | | | | | |
| 19 | 3.29, 3.11, 1.52, 1.52 | 0.48 | 4.86 | 0.79 | 21-27 | Fl.1-featureless |
| 20 | 3.11, 3.05, 1.98, 2.13 (Rooms 18 and 19 were originally a single room..... (Beneath both of these rooms resting on bedrock were 4 mealing bins) | 0.67 | 6.33 | 0.79 | 21-27 | Fl.1-featureless Fl.2-2 slab-lined cists |
| <u>Subsequent Additions</u> | | | | | | |
| 9 | 2.44, 2.38, 1.83, 1.83 | 0.76 | 4.41 | | | Fl.1-mealing bin Fl.2 - 2 mealing bins, firepit |

Notes: Rooms 10, 11, and 18 were all partially preserved (no complete dimensions). Substructures and associated features were present in rooms 1 (Fl. 2), 2 (Fls. 2 & 3), 12 (Fl. 2), 16 (Fl. 2) and 18/19 (below Fl. 2) were not associated with all or any of the overlying walls.

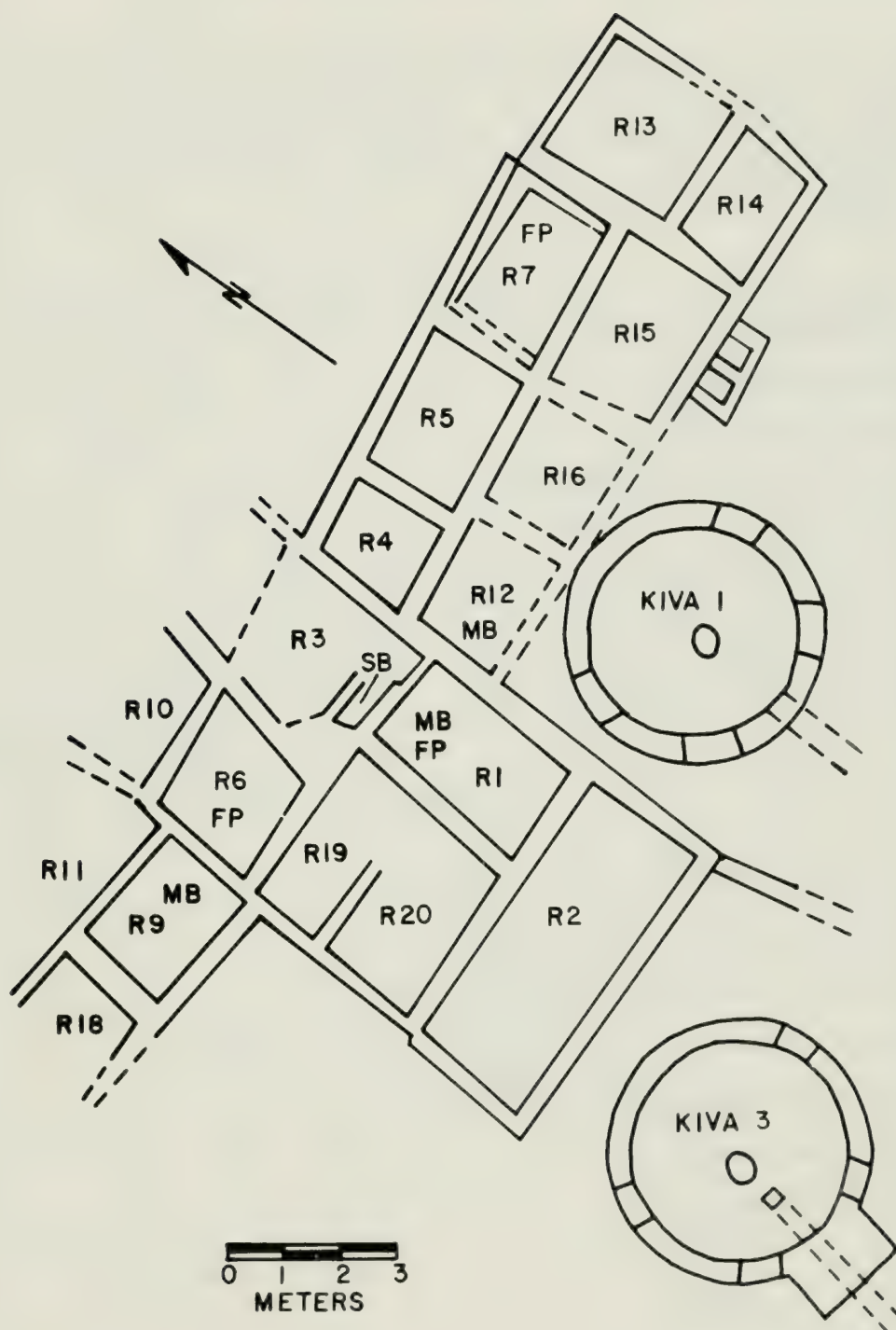


Figure A.115. Bc 362 (29SJ 827), late 1000s-middle 1100s construction (after Vivian and Mathews 1965).

Table A.25. Site 29SJ 633, "The 11th Hour Site."

Comments: Not all of the walls in the eastern portion of the site were exposed. Additionally the wall lengths listed on this table are all wall top lengths. Floor areas, except for Room 7, are all estimates from these wall top dimensions. This site was tested by Truell and Jacobson of the Chaco Center in 1978. Along with plaza tests and one shallow kiva test, 1 1/2 rooms were dug (Truell 1979). Numerous remote sensing experiments were conducted in conjunction with these excavations.

| <u>Rm #</u> | <u>Wall Lengths (m)</u> (N,S,E,W) | <u>W/L</u> <u>Ratio</u> | <u>Estimated</u> <u>Floor</u> <u>Area(m2)</u> | <u>Max.</u> <u>Wall</u> <u>Ht.(m)</u> | <u>Wall</u> <u>Thick.</u> <u>(cm)</u> | <u>Floor Features</u> <u>& Other Comments</u> |
|-------------|--------------------------------------|----------------------------|---|---|---|---|
| 1 | (walls not complete) | | | | | (Most rooms not dug.) |
| 2 | (walls not complete) | | | | | |
| 3 | 3.28, 3.56, 2.95, 3.00 | 0.87 | 10.31 | | | |
| 4 | 3.80, 3.65, 2.13, 2.35 | 0.60 | 8.39 | | | |
| 5 | 3.78, 3.80, 3.00, 2.86 | 0.77 | 10.89 | | | |
| 6 | 3.50, 3.80, 2.04, 2.23 | 0.59 | 7.74 | | | |
| 7 | 4.22, 4.22, 2.74, 3.00 | 0.68 | 12.11 | 1.18 | 18-34 | 2fls.; lower=fpt., corner bin, 2 pits (partial surf.); upper=2 fl. burned, 5 pits, 2 phs; niche or wall vent |
| 8 | 4.50, 4.50, 1.85, 1.65 | 0.39 | 7.40? | .77 | 22-34 | 2 fls.-only 1/2 dug |
| 9 | 2.80, 3.40, 2.48, 2.10 | 0.74 | 7.10 | | | |
| 10 | 2.50, 2.85, 2.00, 2.15 | 0.78 | 5.57 | | | |
| 11 | 1.40, 1.64, 1.74, 1.65 | 0.89 | 2.62 | | | |
| 12 | 2.30, 2.23, 1.76, 1.72 | 0.77 | 4.03 | | | |
| 13 | (walls not complete) | | | | | |
| 14 | (walls not complete) | | | | | |

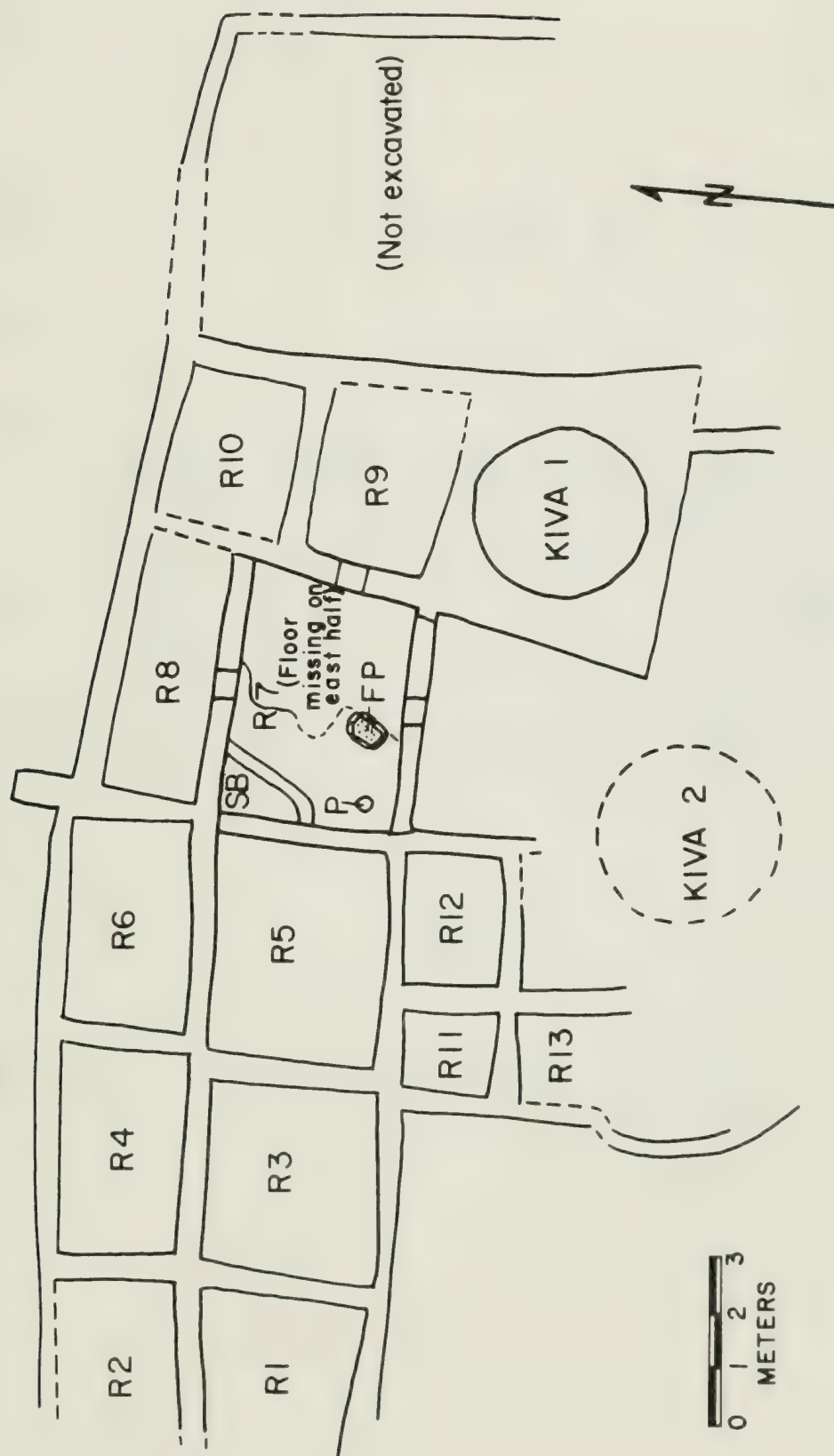


Figure A.116. Site 29SJ 633, plan view of the late 1000s-middle 1100s construction (later 1200s remodeling present in excavated rooms) (after Truell 1979).

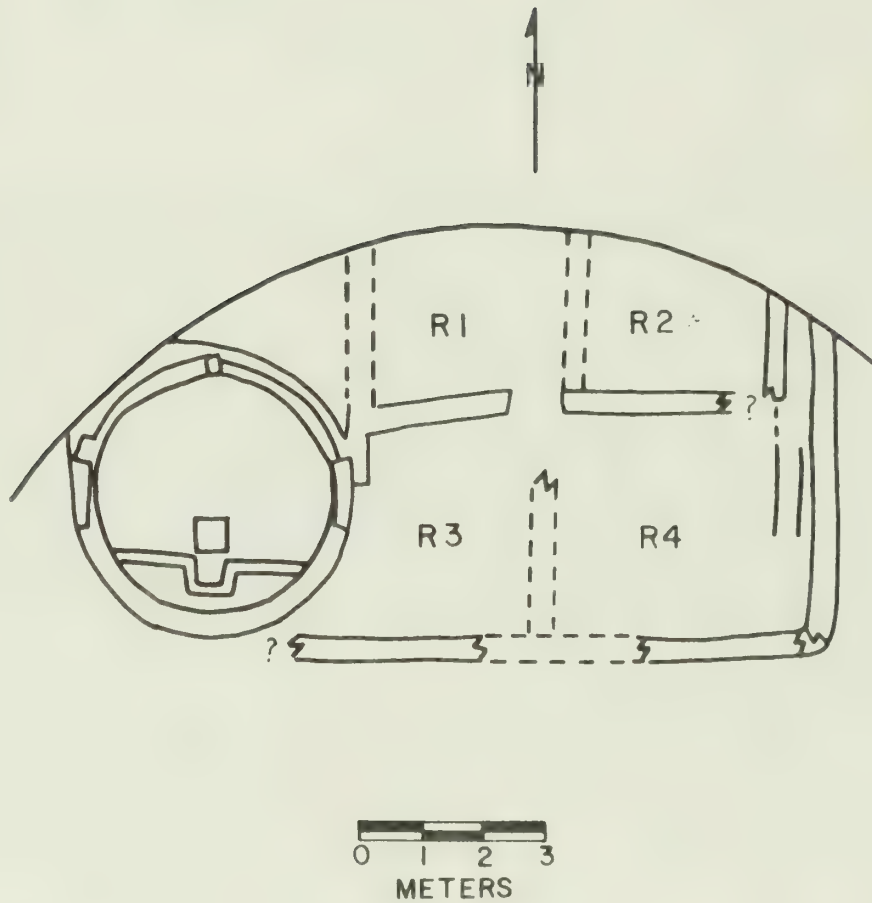


Figure A.117. Bc 288 (Gallo Cliff Dwelling), plan view of roomblock (A.D. 1200s) (Chaco Center Archives #2149).

Appendix B

Small Sites with Cored Masonry

(The following list was taken from data presented on site survey forms and from small site excavation and testing. Survey information was not re-checked before presentation here and in most cases, cored masonry was indicated on these sheets as only possibly present.)

29SJ108--W mouth of Werito's Rincon; 20 to 25 rooms, 2 kivas; PII through PIII. (Since the survey, the two mounds of this site have been split into two site designations - see 29SJ2389 listed below.)

29SJ200--W side below mouth of South Gap; Bc 114 or Anna Shepard's site; PARTIALLY EXCAVATED; lumped with Bc 113; 25-30 rooms, 3 kivas; PI through PIII.

29SJ297 (Bc 383)--M.V. site on east side just under the top of Fajada Butte; 8+ rooms, 1 kiva?; late PII-PIII.

29SJ344--Kin Klizhin Quad-T.21N,R.12W,Sec.25; 2 rooms, 1 kiva; early PII.

29SJ352 (Bc 395)--directly east of NPS fence near badlands-Kin Klizhin Quad; 25+ rooms; 3 kivas plus 1 larger kiva which I do not think is a Great Kiva; PI through PIII.

29SJ383 (Bc 118)--at west side right at mouth of South Gap; only the lower mound included here - the upper mound is now 29SJ2393; 12+ rooms, 1-2 kivas; PI through PIII.

29SJ402--north of the Escavada bridge on west side of 56; 5-10 rooms, 2-3 kivas; early PII-early PIII, Historic.

29SJ529--on east side of road between Visitors Center and Campground-Warnock's "Little Site"; 20 + rooms, 1-2 kivas, 1 tower; PI - late PIII.

29SJ544 (Bc 217, Bc 305)--north of the road on the way to Wijiji just around the first big point from the Campground; 1-2 rooms, 1 kiva, 1 storage room with cored masonry; PI through early PIII.

29SJ552--in Chaco Wash below Shabik'eshchee south of the current road; 1-2 rooms; PI? (ceramics indicate actually PI - masonry should be reexamined - earliest example of cored masonry in small sites); compound or cored masonry wall exposed in bank collapse in 1973.

29SJ554 (Bc 219)--north of the Wijiji road past the 29SJ542 point at mouth of first rincon; 2? rooms, no kivas reported; early PII and late PIII.

29SJ589 (Bc 236)--EXCAVATED - Zorro Bradley's site PI, late PIII (also early 1100s); see my notes.

29SJ631--on south bounding ridge of Marcia's Rincon; 14-17 rooms, 1 kiva; site report says one Great Kiva, but it certainly does not look like it; PI through late PIII.

500 Small Sites

29SJ722 (Bc 165)--east of the mouth of Werito's Rincon); 4-5 rooms, 1 kiva, 1 hogan; PI through late PIII (M.V.), Historic.

29SJ732--opposite side of canyon from Kin Nahasbas-west; 6-8 rooms, 1 kiva, 1 cist and 2 hearths or possibly 3 cists; PI through PIII (no M.V.).

29SJ755 (Bc 65)--just to west of Leyit Kin Rincon; may have a layout similar to Leyit Kin with rooms completely surrounding kiva; 5-8 rooms, 1 kiva, 1 water control?; PII through early PIII.

29SJ756 (Bc 132?)--just to west of Leyit Kin Rincon; 3 rooms, 1 kiva, petroglyphs; PII-early PIII, Historic-Rock Art.

29SJ832 (Bc 120)--group west of the mouth of South Gap; 13-15 rooms, 4 kivas; PI through PIII.

29SJ834 (Bc 122)--group of large small sites west of the mouth of South Gap; TESTED?; 20-35+ rooms, 2+? kivas; PIII (I think Red Mesa site is under it).

29SJ835 (Bc 123?)--in the group of large small sites west of the mouth of South Gap; 20-30 rooms, 1-3? kivas; late PII-PIII (Mckenna says just PIII).

29SJ837 (Bc 125)--in the group of large small sites west of the mouth of South Gap SE of Hutch's Site-29SJ838; 8-10 rooms, 1 kiva; PI through PIII; PI pithouse and possible associated storage rooms; roomblock above may be mostly PII-early PIII.

29SJ841 (Bc 128)--in the group of large small sites west of the mouth of South Gap just east of the first deep rincon west of the gap; ? rooms, 3 kivas; PI, late PII-PIII.

29SJ850--west side of South Gap just south of the mouth, north of Anna Shepard's site; 2-4 rooms, 1 kiva, stairway; PI through PIII.

29SJ886 (Bc 412)--on flats SE of Padilla Well on opposite side of Escavada and below and SW of 29SJ1088 or the "Medicine Hogan"; 8+ rooms, 1 kiva; PII through PIII (McKenna indicates PI through PIII occupation).

29SJ1054 (Bc 363)--opposite side of the Canyon from Casa Chiquita-west and a very little south; EXCAVATED by Gordon Vivian in 1947?; 2 rooms, no kivas; early PIII.

29SJ1253 (Bc 242)--on first big ridge south of Marcia's Rincon; Great Kiva; PII-PIII (a little PI).

29SJ1254--on same ridge, upslope from 29SJ1253, just south of the Three-C site; 9-17+ rooms, 2 kivas; consists of 2 ruins - 5+ rooms, PI-PII L-shaped number and the other is a PII-PIII with PI-PII? rooms underneath it (one kiva with each room visible from surface); cored masonry with latter later ruin; BMIII-PI sherd scatter with the latter.

29SJ1272 (Bc 237)--just NW of 29SJ1360, immediately N of Fajada Butte; 10-15 rooms, 2 kivas; PI roomblock east of PIII rooms; PI through PIII although the survey form does not mention the apparent extensive Red Mesa occupation.

29SJ1278 (Bc 239 - part of 29SJ298 from 1971 survey)--located immediately north of site 29SJ1360, north of Fajada Butte; 14-19 rooms, 1-2+ kivas, earlier (PII?) house beneath and offset to the west of the PIII house mound; large pot hunted trash mound with many "burial slabs" lying around on the surface; PII-PIII.

29SJ1292 (Bc 369)--due S of Zorro Bradley's Site (29SJ589), NE of Fajada Butte, E of NW tip of Chacra Mesa; 5-9 rooms, 1 kiva, L-shaped house?; trash mound; PII-early PIII; (McKenna notes that PI-PII sherd representation not indicated in survey report).

29SJ1297 (Bc 369)--N of W end of Chacra Mesa, NE of Fajada Butte; 5-9 rooms, 1 kiva, trash mound - potted in the late 1800s?.

29SJ1318 (Bc 234)--N side of W end of Chacra Mesa at mouth of first deep rincon E of mesa tip; 12-17 rooms, 1 kiva; 1 retaining wall encloses the plaza; trash mound; PII through PIII.

29SJ1350--N side of the W end of Chacra Mesa at mouth of second deep rincon E of tip; 13 rooms, 1+ kiva; hearth; digging stick cache N of roomblock was excavated (removed) by Schelberg et al. in 1972; PI, PIII, Historic.

29SJ1578--T.21N,R.12W,Sec.32 - La Vida Mission Quad; 3 rooms; PII-PIII.

29SJ1595--on the mesa top NW of Mockingbird Wash; 5-6 rooms, 2 kivas; PII-PIII, Historic (pile of recently deposited rock).

29SJ1706 (Bc 62)--adjacent to cliff edge, immediately S of Bc 51; 10?-15? rooms, 1? kiva; trash covers roomblock?; PI through PIII.

29SJ1809--W side of South Gap, S of boundary fence; EXCAVATED by Gordon Vivian?; 8-10 rooms, 1 kiva; PI through PIII.

29SJ1867--next to the badlands area S of and across the Escavada Wash from Padilla Well, immediately S of vandalized site 29SJ352; 10-15 rooms, 1 kiva; PI through early PIII.

29SJ1912 (Bc 192, Bc 193, "Lizard House")--W side of first rincon E of Chetro Ketl; EXCAVATED by James Maxon and the N.P.S.; 17 +rooms, 3 kivas; late PII- PIII.

29SJ1927 (Bc 89)--immediately N of E end of Chetro Ketl; PARTIALLY EXCAVATED by Hawley? or UNM/SAR? field school; 11-13 rooms, 1 kiva; PI through PIII.

502 Small Sites

29SJ1935 (Bc 348)--at base of cliff behind N wall of Pueblo Bonito; EXCAVATED by R. Wetherill?; 2+ rooms, 1 kiva; viga holes; petroglyphs of three 6-toed feet; late PIII?.

29SJ1936 (Bc 98,99)--west of the Bonito stairway which has been blocked off, just E of ramp of second stairway); 15-25 rooms, 1+ kivas; 18 viga holes; petroglyphs; masonry ramp to W part of site; PI through PIII.

29SJ2389 (Bc 151)--originally part of 29SJ108 (see above for location); 25 to 30 rooms; PI through PIII.

29SJ2391 (Bc 115)--one of the three mounds which was originally lumped by the Chaco Center survey into 29SJ200 (see above - one portion = Anna Shepard's site); 12 to 15 rooms, 3 kivas; PI through PIII, Historic.

29SJ2393 (Bc 117)--originally part of site 29SJ383 (one of two mounds); 13-15 rooms, 3 kivas; late PII-PIII.

29MC146--La Vida Mission Quad, T.20N,R.12W, Sec.5/6; 2 rooms, 1 tower kiva?; 1 plaza; PI-PIII.

29MC160--Pueblo Pintado Quad, T.20N,R.8W,Sec.10; 6-8? rooms, 1? kiva; 1 slab baking pit; refuse mound; late PII-PIII.

29MC163--Pueblo Pintado Quad, T.20N,R.8W,Sec.10/15; 2 roomblocks - 14 rooms and 1 kiva in one, 15+? rooms in the other, 1 kiva plus possible earlier one beneath; may be all one mound (hard to tell); two trash mound areas (also may be continuous); PI through PIII.

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